Diploma and $4

Diploma and

Diploma and $4

Diploma and $3

Diploma and $3

Two saddles and bridle, John Crossett, Connersville

Diploma and $3

Two saddles, Franklin Warren, Greensburgh, Ind.

Pat. ut expanding collar block, J. I. Harbison, Greensburgh

Sulky, Charles Veach, Connersville, Ind.

Eighteen, who has wrought but two years at the trade

Child's carriage, C. K. Myers, Franklin, Ind.

Diploma and $4

F. Coen's patent bench vise, H. W. Shaw, Indianapolis

Barrel of corn meal, Jacob Rehbold, Harlow

Diploma and $4

Butter tester, L. Snyder, Indianapolis

Diploma and $4

FOURTH REPORT

OF THE

INDIANA

STATE BOARD OF AGRICULTURE,

CONTAINING THE

TRANSACTIONS OF THE BOARD,

FOR THE YEARS 1854–'55.

INDIANAPOLIS:
WILLIAM J. BROWN, STATE PRINTER.
1856.

COMMUNICATION FROM THE GOVERNOR.

INDIANAPOLIS, INDIANA,
JANUARY 3, 1855.

To the General Assembly of the State of Indiana:

In accordance with the provisions of the act for the encouragement of agriculture, I herewith lay before the General Assembly the Fourth Annual Report of the State Board of Agriculture, exhibiting the receipts and expenditures of the Board, together with the proceedings and reports of the several county societies, for the year 1854.

It is a source of gratification to observe that, in stimulating and rewarding the agricultural and mechanical skill and industry of Indiana, the efforts of the State Board and its auxilliary associations have been, during the past four years, eminently successful. I respectfully recommend that the same number of this report be printed for distribution, to wit: four thousand, among the county societies, and our sister States, who have so generally exchanged with our Board.

Respectfully,

JOSEPH A. WRIGHT,
President of the Board.

MEMBERS OF THE STATE BOARD FOR 1855.

PRESIDENT.

GENERAL JOSEPH ORR, LAPORTE COUNTY.

VICE PRESIDENTS.

GENERAL JAMES P. DRAKE, MARION COUNTY.
WILLIAM H. BENNETT, UNION COUNTY.

A. J. HAY, Clark County.
J. A. MATSON, Putnam County.
W. T. DENNIS, Wayne County.
G. D. WAGNER, Warren County.
GEO. W. LANE, Dearborn County.
STERNS FISHER, Wabash County.
ABRAHAM SMITH, Knox County.
SAMUEL HERRIOTT, Johnson County.
JACOB R. HARRIS, Switzerland County.
D. S. HUFFSTETTER, Orange County.
JOSEPH ALLEN, Montgomery County.
I. D. G. NELSON, Allen County.
JAMES W. COCKRUM, Gibson County.

MEMBERS OF THE STATE BOARD FOR 1856.

PRESIDENT.

DR. A. C. STEVENSON, PUTNAM COUNTY.

VICE PRESIDENTS.

GENERAL JAMES P. DRAKE, MARION COUNTY.
WILLIAM H. BENNETT, UNION COUNTY.

GEN. JOSEPH ORR, Laporte County.
W. T. DENNIS, Wayne County.
G. D. WAGNER, Warren County.
GEO. W. LANE, Dearborn County.
STERNS FISHER, Wabash County.
A. J. HAY, Clark County.
I. D. G. NELSON, Allen County.
DR. R. T. BROWN, Montgomery County.
DR. RUFUS HAYMOND, Franklin County.
DR. G. B. GRAFF, Gibson County.
WM. M. FRANKLIN, Owen County.
S. VAWTER, Jennings County.
J. D. WILLIAMS, Knox County.

EXECUTIVE COMMITTEE FOR 1856.

DR. A. C. STEVENSON, GEN. JOSEPH ORR,* G. D. WAGNER, GEO. W. LANE, W. T. DENNIS.

SECRETARY.

JOHN R. DILLON, INDIANAPOLIS.

TREASURER.

SALMON A. BUELL, INDIANAPOLIS.

GENERAL SUPERINTENDENT.

CALVIN FLETCHER, JR., INDIANAPOLIS.

* Resigned.

TREASURER'S REPORT FOR 1854.

ROYAL MAYHEW, *Treasurer of the Indiana State Board of Agriculture, in account with said Board:*

DEBTOR.

1854.		
Jan. 1,	To amount on hand, as reported January, 1854	$3,587 93
May 2,	To amount received of David Macy	219 00
Oct	To amount received for badges and tickets sold at State Fair, Madison	3,623 84
	Total	$7,430 77

CREDIT.

1854.		
Jan. 7,	By cash to I. I. Bingham, balance of account as Superintendent	$489 21
" 7,	Cash premiums of 1853, awarded at Lafayette	849 00
" 7,	John Levering, expenses attending State Board	15 00
" 7,	John A. Warder, for 26 Nos. Horticultural Review	65 00
" 7,	Joseph Orr, expenses attending State Board	15 50
" 7,	George W. Lane, expenses attending State Board	15 00
" 7,	T. J. Spaulding, expenses attending State Board	18 00
" 7,	Middleton & Wallace (paid Dennis) on plate for diplomas	220 00
" 7,	Austin H. Brown, account for printing	15 70
" 7,	Jacob R. Harris, expenses attending State Board	16 00
" 7,	D. P. Holloway, expenses attending State Board	8 00
" 7,	John B. Dillon, assistant secretary at State Board	9 00
" 7,	E. Lock, for express charges for President	6 50
" 31,	Dr. R. T. Brown, geologist	125 00
Feb. 4,	W. T. Dennis, expenses as delegate to Washington	60 00
Mar. 6,	W. H. Talbott, on silver ware	700 00
April 17,	Holloway & Davis, printing, &c	100 00
" 17,	Amount premiums awarded at State Board, January, 1854	61 00
" 17,	Farrow & Call, for premiums of 1852	9 00
" 17,	Edward Gird, premium on pumpkins, first Fair	2 00
" 17,	L. D. Miller, for posting bills	3 75
May 1,	R. Mayhew, Treasurer, salary to 1st May, two years	500 00
" 1,	Middleton & Wallace, balance on bill for diplomas	100 00
" 1,	Middleton & Wallace, balance on account of 1853	117 00
" 1,	W. T. Dennis, salary, order to Talbott	100 00
" 1,	W. T. Dennis, salary, order to Dillon	100 00
Oct.	W. H. Talbott, for balance silver ware of 1854	1,239 85
"	H. H. Nelson, for desk, agricultural room	7 50
"	Dr. R. T. Brown, balance of salary as Geologist	375 00
"	S. P. Bailey, repairing case silver ware	15 75
"	R. Mayhew, sundry expenditures two years, books, &c	12 85
Nov. 1,	R. Mayhew, six months' salary to date	125 00

EXPENSES AT MADISON.

Oct.	John Kirk, captain of police	207 75
"	John J. Phillips, various work and materials	46 75
"	J. G. Norvell, sprinkling	4 50
"	D. Berlin as marshall	15 00
"	M. C. Garber, printing	19 00
"	Crail & Arion, printing	9 25
"	A. M. Wilson, posting bills	5 00
"	Swormstedt & Co., ribbons, pins, cambric	30 67
"	Daniel McIntire, one day's service	1 50
"	L. D. Adams, various stationery	20 13
"	Crawford, Davidson & Westcott, per bill	37 41
"	Bill of police, seven persons, per Dennis	74 25
"	Amount to clerks for Treasurer's office	72 00
"	Amount to clerks for Secretary's office	111 00
"	Richardson & French, for five bed cords	1 25
"	W. A. Jones, hauling four loads lumber	60
"	Scott & Crawford (to Holloway) for ribbon, &c	32 50
"	Holloway & Davis (to Holloway) for printing, 1854	170 80
"	Mary Swisher, for damage to quilt by cutting	10 00
"	Hugh J. Kelley, for services at Fair	19 60
"	Hugh J. Kelley, for services and drayage of tent, &c	6 05
	Total expenditures	$6,399 62

Amount of receipts as above	$7,430 77
Deduct expenditures as above	6,399 62
Showing a balance of	$1,031 15

It is proper to remark that there has been already paid on account of premiums for the year 1854, awarded at Madison, about the sum of $500, and it is supposed that about $100 further will be required, in all $600, to complete said payments; which sum deducted, would now leave, as available for other purposes, in the hands of the Treasurer, $431 15.

Respectfully submitted,

R. MAYHEW, *Treasurer.*

January 4, 1855.

TREASURER'S REPORT FOR 1855.

Abstract of Treasurer's Report for the Year ending December 31, 1855.

RECEIPTS OF CASH.

1855.				
Jan'y	17,	From Royal Mayhew, former Treasurer, as total balance in treasury at the expiration of his term of office		$321 04
March	24,	From Gov. Joseph A. Wright, on account of appropriation by General Assembly to State Board of Agriculture		1,000 00
Aug.	27,	From subscription by citizens of Indianapolis to State Fair Grounds		235 00
"	28,	From subscription by citizens of Indianapolis to State Fair Grounds		160 00
"	30,	From subscription by citizens of Indianapolis to State Fair Grounds		55 00
Sept.	3,	From subscription by citizens of Indianapolis to State Fair Grounds		22 50
"	6,	From Gov. Joseph A. Wright, on account of appropriation by General Assembly to State board of Agriculture		500 00
"	8,	From subscription by citizens of Indianapolis to State Fair Grounds		65 00
Oct.	1,	From subscription by citizens of Indianapolis to State Fair Grounds		5 00
"	5,	From subscription by citizens of Indianapolis to State Fair Grounds		70 00
"	6,	From subscription by citizens of Indianapolis to State Fair Grounds		11 00
"	11,	From sale of badges prior to State Fair		3 00
"	12,	From sale of badges prior to State Fair		4 00
"	12,	From subscription by citizens of Indianapolis to State Fair Grounds		136 00
"	12,	From sale of tickets prior to State fair		25
"	13,	From subscription by citizens of Indianapolis to State Fair Grounds		64 00
"	13	From subscrip ion by citizens of Indianapolis to State Fair Grounds		8 00
"	15,	From subscription by citizens of Indianapolis to State Fair Grounds		5 00
"	15,	From sale of badges prior to State Fair		6 00
"	18,	From Professor J. J. Mapes, to be applied to a premium list prepared by him for the State Fair of 1856		100 00
"	20,	From Marion County Agricultural Society, as subscription to State Fair Grounds		1,000 00
"	20,	From Fletcher & McElrath, for exclusive privilege of eating-house on State Fair Grounds, 1855		240 00
"	22,	From subscription by citizens of Indianapolis to State Fair Grounds		15 00
"	23,	From sundries at State Fair, as follows:		
		Badges 6,302, @ $1 each	$6,302 00	
		Carriage tickets, 34, @ $1 each	34 00	
		Buggy tickets, 89, @ 50 cents each	44 50	
		Tickets, 17,773, @ 25 cents each	4,443 25	
				10,823 75
Dec	24,	From Bidwell & Brother, premium conditionally donated		3 00
	27,	From subscription by citizens of Indianapolis to State Fair Grounds		10 00
		Total receipts		$14,578 54

EXPENDITURES OF CASH.

On account of expense of 1852	$22 25
On account of premiums, 1853	5 00
On account of expense, 1854	30 00
On account of premiums, 1854	9 00
On account of expense, 1854-5*	14 70
On account of expense, 1855	2,666 30
On account of premiums, 1855	1,264 75
On account of silver ware, 1855	2,442 84
On account of Superintendent's expense, Fair Ground improvements	7,968 10
On account of salaries of 1855	487 50
Total expenditures	$14,210 44

SUMMARY.

Total receipts of cash		$14,572 54
Total expenditures of cash	$14,210 44	
Loss by counterfeit and uncurrent money	40 00	
Cash on hand	322 10	
		14,572 54

FINAL STATEMENT OF CASH.

Cash on hand		$322 10
Belonging to Mapes' premiums	$100 00	
Belonging to printers' premiums	3 00	
Due on salaries of 1855	62 50	
Subject to draft	156 60	
		322 10

S. A. BUELL, *Treasurer.*

*This was for a bill of expense for both years, so blended as to render separation impossible, and hence placed in an account by itself.

ABSTRACT

OF THE PROCEEDINGS OF THE INDIANA STATE BOARD OF AGRICULTURE, AT THE JANUARY SESSION, 1855.

The Indiana State Board of Agriculture met at the State House, on Thursday, January 4, 1855. Present—Gov. Joseph A. Wright of Marion county, Joseph Orr of Laporte county, A. C. Stevenson of Putnam county, Geo. W. Lane of Dearborn county, Jacob R. Harris of Switzerland county, John Levering of Tippecanoe county, and David S. Huffstetter of Orange county.

The following named gentlemen were present, as delegates from county agricultural societies, viz:

From the county of Adams.—S. L. Rugg,
From the county of Bartholomew.—Thomas Essex,
From the county of Boone.—A. J. Boone,
From the county of Cass.—D. M. Dunn,
From the county of Carroll.—J. Odell,
From the county of Clark.—A. J. Hay, W. M. French,
From the county of Dearborn.—F. Worley,
From the county of Daviess.—W. S. Turner,
From the county of Decatur.—O. Thompson,
From the county of Delaware.—J. C. Helm,
From the county of Elkhart.—C. L. Murray,
From the county of Franklin.—A. B. Line,
From the county of Fayette.—Newton Claypool,
From the county of Greene.—F. B. Cressy,
From the county of Grant.—R. H. Lenfesty,
From the county of Hancock.—James Tyner,
From the county of Huntington.—Mr. Hawley,
From the county of Hendricks.—A. Furnas,
From the county of Henry.—G. W. Lennard,
From the county of Johnson.—J. L. Bradley,
From the county of Jennings.—J. H. Vawter,
From the county of Jefferson.—C. D. Branham,
From the county of Knox.—J. T. Freeland,
From the county of Lagrange.—C. Corey,

From the county of Laporte.—George Crawford,
From the county of Marion.—P. Howland,
From the county of Morgan.—W. B. Thompson,
From the county of Montgomery.—Dr. R. T. Brown,
From the county of Monroe.—Lewis Bollman,
From the county of Owen.—George Parks,
From the county of Parke.—W. G. Coffin,
From the county of Putnam.—J. A. Matson,
From the county of Randolph.—Thomas Reece,
From the county of Scott.—A. A. Morrison,
From the county of Shelby.—J. M. Worland,
From the county of Spencer.—S. D. Williams,
From the county of Stark.—J. A. Burbank,
From the county of Sullivan.—J. W. Briggs,
From the county of St. Joseph.—W. H. Loomis,
From the counties of Switzerland and Ohio.—John T. Wright,
From the county of Tippecanoe.—W. L. Ellsworth,
From the county of Union.—W. H. Bennett,
From the county of Vigo.—S. B. Gookins, Geo. Durham,
From the county of Wabash.—W. T. Ross,
From the counties of Warren and Fountain.—G. D. Wagner,
From the county of Wayne.—Sol. Meredith.

Reports from the county societies, and essays on various subjects, were laid before the Board.

Several specimens of apples, grains, domestic manufactures, &c., were laid out on the tables for exhibition.

Gov. Wright laid before the Board an essay, by Mr. Burbank, on the cultivation of cranberries.

A committee consisting of Messrs. Orr, Worley, Thompson, Davidson, Crawford and Lennard, was appointed to examine the specimens of grains, fruits, &c., which were laid before the Board.

Messrs. Line, Harris, Wagner, Parks, and Claypool, were appointed a committee to memorialize the Legislature, for the purpose of obtaining, for county agricultural societies, the right to hold real estate to be used as fair grounds.

Mr. Reece made some interesting remarks on the subject of underdraining.

The Board then adjourned till two o'clock, P. M.

AFTERNOON SESSION.

The following resolutions were offered and adopted:

By Mr. Reece, instructing the committee on Premiums to offer a premium for the best specimen of burnt clay tiles for underdrains.

By Mr. Howland, that the Board abolish all minimums in making out the premium list, and require all competitors on grains to file a written statement of the

mode of tillage, the cost of cultivation, the quantity produced, and the quality of the soil.

By Dr. Brown, that a committee of three be appointed to memorialize the Legislature on the importance of a thorough geological survey and mapping of the State, so as to exhibit the geology, topography, mineralogy, soil, timber, &c., of every section of land in the State, and solicit that body to make the appropriation necessary to accomplish this object.

Messrs. Brown, Lane and Freeland were appointed said committee.

By Mr. Wagner, directing a premium to be offered for the best mode of cultivating wheat.

By Mr. Morrison, that premiums offered for crops be divided into two classes, so as to distinguish between crops raised on alluvial and prairie soils from those raised on clay upland soils.

By Mr. Farnas, that a liberal premium be offered for the greatest weight of beef and pork, the exhibiter giving well authenticated evidence of the age and blood of the animal, and the daily process and cost of feeding.

By Mr. Line, directing a committee to be appointed to prepare a list of questions to be answered by each competitor for premiums on grain, embodying information required by the list, and that the list be recommended for the adoption of county societies.

Messrs. Morrison, Reece, Matson and Boone were appointed said committee.

By Mr. Matson, asking the members of the State Board and Delegates present to furnish, during the current year, more articles for publication in the agricultural papers of our State.

The Board adjourned until evening. During the evening session the subject of the Hessian fly, sheep-killing dogs, drainage and subsoil plowing, were discussed

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FRIDAY MORNING, Jan. 5, 1855.

RESOLUTIONS OFFERED AND ADOPTED.

By Mr. Line, directing the appointment of a committee to prepare a stringent measure for the action of the Legislature against sheep-killing dogs.

Messrs Line, Dennis and Lane were appointed said committee.

By Mr. Howland, requesting the Executive Committee to offer a premium to test the beneficial effects of the roller, by requiring the competitors to cultivate a field of not less than ten acres, of equal quality and fertility, and giving the same cultivation to the whole; but one-half to be rolled, the other half to be left unrolled.

By Mr. Dennis, instructing the President of the State Board to ask our Representatives in Congress to use their influence to obtain the establishment at Washington City, of an Agricultural Department, whose chief officer shall be a member of the Cabinet; and instructing the presidents of county societies to procure and forward petitions from their respective counties of the same tenor.

By Mr. Matson, that premiums in silver ware, in place of money premiums, be given to those who may desire it.

By Gov. Wright, that each county society be requested to send a delegate to attend the meetings of the Executive Committee, to aid in making committees of *awards*, or to communicate from each society the names of suitable persons to be placed on awarding committees.

By Mr. Vawter, that it be made the duty of the secretary of each county society, upon its organization to notify the secretary of this Board of such organization, and that then it be the duty of the secretary of this Board to furnish such county society with the requirements of this Board—a list of such questions to competitors as may be adopted by this Board, and all other information necessary to enable the officers of such county societies to understand their duties, and for such services be allowed to collect a reasonable fee from such county societies.

The questions referred to in the foregoing resolution are as follows:

What is the quality of the soil on which the crop was grown? Bottom? Upland? Prairie? General depth of the soil?

On what is it based? Gravel? Sand? Lime-stone beds? Hard or compost clay?

What, if any natural streams of water pass through or near the field? Artificial drains, if any? The manner of their construction and approximate cost?

If manures are used, what kind? What season of the year, quantity and manner of application?

Time and manner of planting? Kind of seed? Where obtained and how prepared?

Time of breaking? Depth, and if subsoiled, the manner of doing it? Manner of tillage?

What the greatest yield per acre? The average yield of the whole crop?

Cost per acre of producing crop, including seed, manure and tillage?

How long has this mode of tillage been pursued by you, and how do the results of former years compare with the crop placed in competition?

The report of the Treasurer of the State Board was received, and after being referred to a committee was examined and concurred in.

Dr. Brown, from the committee, reported a memorial on the subject of a geological survey; concurred in, and ordered to be laid before the Legislature by the President of the Board.

On motion, the Executive Committee was directed to fix the time of holding the State Fairs, on the years when there was no general election, in the beginning of October, and when there was a general election, immediately after such election.

T. J. Edmonson, of Bartholomew county, exhibited a model of a corn planter; which was referred to an appropriate committee.

On motion of Mr. Helm, the committee on premiums was directed, if they deem expedient, to test by premiums the utility of subsoiling and underground draining.

On motion of Dr. Freeland, the establishment of an Agricultural Department in the State University, was recommended.

The Executive Committee were instructed to locate the next State Fair at Indianapolis, provided sufficient inducements be offered.

Adjourned until 3 o'clock.

[The Board and Delegates upon the invitation of Governor Wright, then repaired to his mansion, and partook of a dinner, prepared in a manner, in every way worthy the occasion, embracing the finest specimens of agricultural skill, and arranged with an unsurpassed taste.]

AFTERNOON SESSION.

The Board met.

Mr Lane from the committee, reported a memorial and proposed law, on the subject of sheep-killing dogs, which was adopted.

Gen. Orr, from the Special Committee on Premiums, reported, making awards to those exhibiting fruits, seeds, &c., at the present meeting.

On motion of Mr. Coffin, the Executive Committee were instructed to use due dilligence to recover the essays on Agricultural Education, which were entered at the last State Fair; and that in case they reclaim them, they award the premium offered in the list according to their judgment of merit.

The Board then adjourned until evening.

The evening session of the Board was held in the House of Representatives, and was occupied in the reading of two essays—one by Dr. R. T. Brown, on the soils of Indiana, and the best modes of preserving them; and the other, by Mr. Burbank, on the cultivation of the cranberry.

SATURDAY, *January* 6, 1855.

The Board met.

The following named gentlemen were chosen to fill vacancies which will occur in the Indiana State Board of agriculture, at the close of the present session, viz:

A. J. Hay, of Clark county; J. P. Drake, of Marion county; J. A. Matson, of Putnam county; W. T. Dennis, of Wayne county; G. D. Wagner, of Warren county; G. W. Lane, of Dearborn county; Sterns Fisher, of Wabash county; and Wm. H. Bennett, of Union county.

The Board then adjourned, and the new Board met, and elected the following officers:

Gen. Joseph Orr of Laporte county, President; Gen. James P. Drake of Marion, and W. H. Bennett of Union, Vice Presidents; John B. Dillon of Marion, Secretary; and Salmon A. Buell of Marion, Treasurer.

The Board then appointed an Executive Committee, consisting of Messrs. Orr, Dennis, Matson, Lane, and Wagner; when,

On motion, the Board adjourned.

REPORTS

FROM

COUNTY SOCIETIES,

FOR THE YEARS 1854 AND 1855.

ADAMS COUNTY.

[EXTRACT FROM REPORT OF 1854.]

This Society was organized in February, A. D. 1854, at which time the Society elected its officers as follows, to wit:

Hon. S. S. Mickle, President; George A. Dent, Vice President; John McConnel, Treasurer; William G. Spencer, Librarian, and David Studabaker, Secretary.

The first annual Fair of said Society was held on the 19th and 20th days of October, A. D. 1854. There was a respectable number of persons present, and much interest was elicited in the cause of agriculture during the exhibition. The principal articles for exhibition were stock. Some fine Durham cattle were exhibited. The exhibition of farm products was small in consequence of the drouth during the past season. The Society is yet in its infancy, but I trust it has laid the foundation for future usefulness. The Treasurer's report shows that there was received, up to November 1, 1854,

On account of membership	$65 00	
From the county treasurer	17 00	
		$82 00
Paid out for expenses of Fair	$15 15	
Paid out for premiums	29 85	
		55 00
Balance in the treasury		$27 00

Adams county must become the producer of a large amount of stock; the surface of the land is level for the most part, and peculiarly adapted to the growing of grasses; the St. Mary's river running through the north part of the county and the Wabash through the south part, affording the finest bottom lands, well adapted to the raising of corn. This report is not so extended as I could wish, but the small materials from which this report is to be made will not warrant its extension.

DAVID STUDABAKER, *Secretary.*

BARTHOLOMEW COUNTY.

[EXTRACT FROM REPORT OF 1854.]

Bartholomew suffered as much from the excessive drouth of the past summer, perhaps, as any county in the State. The hay, oats, and wheat crops were excellent. Corn, garden vegetables, &c., &c., turned out poorly; the yield ranged generally from one-third to one-half of the usual crop. The display at the Fair, however, was highly creditable. The ladies deserve especial commendation for their numerous and beautiful contributions to the exhibition. The stock shown, although better than was generally expected, was far less worthy than ordinarily may be found in our county. Much deserving stock was kept back because it was *poor*—the pastures having almost entirely failed. The address was delivered on Thursday by Matthew R. Hull, Esq., of Fayette, and was well received by the large crowd in attendance.

Abstract from Treasurer's Books.

Amount on hand February 18, 1854	$140 95	
Received from 274 members	274 00	
Received from sale of tickets	191 00	
Received from county treasury	75 00	
Received for rent, refreshment stand	12 00	
Silver ware on hand	50 00	
		$742 95
Paid sundry orders amounting to		703 43
Balance		$39 52

The following statistics, gleaned from the returns of the assessors of Bartholomew county, made June 1, 1854, will be interesting to many:

Products, &c.	Number.	Value.
Horses, mules, and asses	5,755	$307,584
Cattle	13,464	128,292
Sheep	12,968	13,734
Swine	49,750	102,037
Bushels of wheat	32,522	28,880
Bushels of corn	430,542	126,462
Bushels of rye	584	247
Bushels of oats and barley	47,526	12,985
Bushels of potatoes	8,003	2,824
Bushels of grass and other seeds	912	1,466
Home-made manufactures	.....	6,770
Poultry	.....	7,017
Orchard products	.....	6,149
Tuns of hay	2,545	14,484
Pounds of wool	1,533	539
Carriages and other vehicles	1,892	86,315
Watches, clocks, and musical instruments	3,051	22,931
Farm utensils	.....	31,912

Respectfully submitted in behalf of the Society,

WM. H. H. TERRELL.

Columbus, Dec. 25, 1854.

BENTON COUNTY.

The Benton County Agricultural Society was organized December 1, 1855, according to the "plan" recommended by the State Board. George Campbell, President; Theophilus Stembel, Treasurer, and Hartley T. Howard, Secretary—with a board of directors. No annual Fair was held. The Society numbers about sixty-five members. The prospects of the Society are flattering. The principal kinds of agricultural productions are corn, potatoes, hay, and oats. The aggregate amount of corn, 300,000 bushels; aggregate amount of oats, 190,000 bushels; aggregate amount of hay, 1,500 tuns; aggregate amount of potatoes, 20,000 bushels. The average yield of corn per acre, 50 bushels; oats, 40 bushels. Principal market, Lafayette.

GEORGE CAMPBELL, *President.*

HARTLEY T. HOWARD, *Secretary.*

CARROLL COUNTY.

[EXTRACT FROM REPORT OF 1854.]

The third annual Fair of this Society was held at Camden, on the 12th and 13th days of October last, 1854. The Fair was very interesting—much more so than on any similar occasion—and the best of hopes are entertained that that interest is growing, and that it will continue to do so, until a great and lasting good will be realized from the organization of our Society, though promising so little at first.

The exhibition of horses was quite large, and, as to quality, would compare favorably with most counties of the State. The cattle show was creditable, though there were but few *thorough* bred on the ground. The collection of hogs and sheep was not to say large, yet of good breeds and well selected.

The specimens of mechanical skill and female industry were well gotten up, and reflect credit on the owners.

The specimens of agricultural and horticultural products, mostly, were not of a superior quality, on account of the severe drouth during the months of August and September.

The principal articles of exportation from this county are wheat, flour, pork, and beef.

The crops in general are far below an average crop. The average yield of wheat, for the last season will scarcely exceed fifteen bushels per acre. Corn will not average more than from thirty to thirty-five bushels per acre. Although the exports of grains from this county will fall far below that of 1853, yet the loss will not be so severely felt, because of the increased price over former years. Wheat has ranged from $1·00 to $1·50 per bushel; corn, from 35 to 50 cents per bushel; clover seed, $6·00; pork, from $3·50 to $4·00 per hundred pounds; hay, from $5·00 to $8·00 per tun; beef, from $4·00 to $6·00 per hundred.

JAMES ODELL, *President.*

A. H. EVANS, *Secretary.*

[FROM THE REPORT OF 1855.]

The annual Fair was first appointed to be held at Delphi, on the 11th and 12th days of October, but on account of an unusual amount of sickness, it was postponed to and held on the 25th and 26th of said month. The weather at the time was cold and disagreeable. The exhibition of stock, manufactured articles, &c., was not so large as it was the last two fairs, but in quality it showed a decided improvement upon any previous year. The good influence of the Society, in the improvement of stock and manufactured articles, particularly those used in carrying on husbandry, is plainly seen, and the members generally are highly pleased with its past history and future prospects.

E. STANSEL, *President.*

A. H. EVANS, *Secretary.*

CASS COUNTY.

The report for 1854, exhibits the Agricultural Society of Cass county in a flourishing condition. No returns for 1855.

CLINTON COUNTY.

[Extract from Report of 1854.]

The Clinton County Agricultural Society held its annual meeting, for 1854, at Frankfort, on the second Monday in February, as provided in the constitution of the Society, at which meeting the following named gentlemen were elected officers of the Society, to serve for the ensuing year, viz:

Wm. H. Reed, President; Wilson Seawright, Vice President; James Gaster, Treasurer, and C. J. Miller, Secretary.

Meetings of the Board of Directors were held from time to time, to transact such business connected with the interests of the Society as was deemed necessary and proper. An executive committee was appointed, consisting of Messrs. Gaster, Holcraft and Frazer, and who were directed by the board, among other duties, to procure a suitable and convenient site for a fair ground, and to obtain a lease for the same for the term of five years. The committee succeeded in obtaining a delightful spot of ground adjacent to the town of Frankfort. The same has been inclosed with a permanent and substantial tight-board fence, and, inside of the inclosure, all the necessary sheds, stalls and fixtures, for holding county fairs, have been erected; thus enabling the Society hereafter to apply the funds for several years to the encouragement of the various branches of agriculture and manufactures among our industrious and enterprising citizens.

Our County Fair was held on the 12th and 13th days of October, and although the weather was quite unfavorable, being rainy, the Fair was a decided improvement on the one of the year before.

Indeed it was thought by many who had opportunities to judge, that it was unsurpassed by any county fair in the State of equal advantages, taking all the circumstances into consideration. Great numbers of people from all parts of the county were in attendance, both days, and a most lively interest was manifested for the prosperity of the Society.

Notwithstanding the premiums offered were unavoidably small, owing chiefly to the expenses of fitting up the ground for the Fair, the number of entries was unexpectedly large, especially in the stock line. In fact it did honor to our intelligent farmers, and showed great perseverance and energy, on their part, in their efforts to emulate each other in the improvement of their breeds of stock. The various kinds of articles on exhibition by the ladies was a source of no little praise and gratification. In short, the whole affair more than filled the expectations of the most sanguine of the members.

It affords great pleasure to see such a lively interest taken in the improvement of farms, both for taste and usefulness. It can be safely affirmed that old Clinton bids fair to be one of the first agricultural counties in the State. Her soil is not excelled in natural fertility by any country on earth. Our facilities for transportation are not as good as they might be, but we have a prospect of shortly emerging from difficulties of that nature in the construction of the C., F. K. and Ft. W. Railroad, which passes through the center of the county. It is now in a rapid stage of progression, with some thirty miles of it nearly ready for the iron.

The principal agricultural products of the county are wheat, corn, oats and barley. Owing to the drouth of the last season crops of all kinds were far below the general average. The average of wheat per acre, in a good season, may be safely set down at from 20 to 25 bushels; of corn, from 50 to 60 bushels; of oats, from 25 to 30, and barley 20 to 25 bushels. Some farmers, however, have raised as high as 35 bushels of wheat and 112 of corn per acre.

The old methods of culture are fast giving way to the progressing spirit of the age, and farmers are beginning to heed more what used to be termed, by way of derision, "book farming." And here let me say, that an incalculable amount of good has been done by the

distribution of "Patent Office Reports," among our farmers. I think our members in Congress would accomplish as much for themselves, and more for the country, by distributing more of those valuable "reports" among the intelligent farming classes, by whom they would be read and appreciated, and fewer of them among doctors, lawyers, and court-house incumbents, who generally pay little or no attention to them, but stow them away to mould on their book shelves. It is my opinion that the Patent Office Reports have awakened more interest in proper methods of ditching and manureing lands than all suggestions on farming put together. Hundreds of acres of land are now yearly drained by sinking good, substantial blind ditches; and the result shows that the husbandman is richly remunerated for his labor by the increase of his crops. Increased attention is also being paid to fruit culture. We anticipate a large accession of members to the Society for the present year, and therefore hope to be able to furnish a fuller and more systematic report next year.

Respectfully submitted,

W. H. REED, *President.*

January 2, 1855.

DAVIESS COUNTY.

[EXTRACT FROM REPORT OF 1854.]

On the 9th day of September, 1854, a general election was held, which resulted in the election of the following officers, viz:

David M. Hixson, President; William S. Turner, Vice President; John T. Veal, Treasurer; R. A. Clement, jr., Secretary; with a board of directors consisting of one from each civil township in the county.

There are about ninety members belonging to the Society. On the 29th and 30th of September, a second annual Fair of the Society was held, and about one hundred and twenty-five dollars paid out on premiums awarded, besides a number of books, consisting of reports of the State Board of Agriculture.

The Treasurer of the Society not yet having made his report, the undersigned is unable to state the amount of assets in hands belonging to the Society, but from the best information believes the same, before the late fair, would amount to about $150.

The right kind of feeling on the subject of agricultural and mechanical improvement has been awakened in our county, and we anticipate good results.

DAVID M. HIXSON, *President.*

DEARBORN COUNTY.

[REPORT OF 1854.]

The third annual Fair of the Dearborn County Agricultural Society was held at the Six-Mile House, in Manchester, on the 20th, 21st, and 22d days of September, 1854. It was not as numerously attended as it was the previous year—owing, it is thought, to the drouth and dust, which rendered traveling extremely disagreeable.

The number of horses, cattle, and sheep on exhibition were fully equal to that of any previous year, and the marked improvement of those entered proves that a portion of our farmers feel a laudable emulation to excel in propagating superior animals of the above classes.

The number of jacks, jennys, mules, and swine, were quite limited in numbers, and were not superior in quality.

The exhibition of poultry was large, and consisted of almost every variety, from the giant Shanghai to the little golden pheasant.

The carriages and buggies were of superior finish, which manifested a skill and efficiency in the manufacturers not surpassed by those of any other county in the State.

The entries of field crops were but few, and no premiums were awarded.

The display of farm implements was meager as usual. We are so near the great manufacturing city of Cincinnati that our farmers

purchase the principal portion of their farming implements there, which is calculated to prevent the mechanics of our own county from engaging in the manufacture of them.

There were some beautiful specimens of the different varieties of fruit, which fully demonstrates that the soil and climate of our county is well adapted to the successful cultivation of all the varieties commonly raised in the middle and western States.

The ladies' department of domestic articles was well furnished, evincing much skill, industry, and taste.

The different varieties of grain raised in this county are wheat, corn, oats, rye, and barley; the two latter are cultivated but to a limited extent. Wheat, rye, barley, and oats, the present year, yielded a full average crop; the three former about 15 bushels and the latter about 35 bushels to the acre.

The corn crop came very near being an entire failure, in consequence of the severe drouth which pervaded this region of country to a most alarming extent. By the most reliable information we have been able to obtain on this subject, the yield on the bottom farms averaged about 25 and the uplands about 12 bushels to the acre; making an average per acre in the county of 18 or 20 bushels—about one-third of an ordinary crop.

The surplus products of our county are sold at Lawrenceburg and Aurora. Wheat is selling for $1·40; corn, 55 cents; rye, 90 cents; barley, $1·12, and oats 40 cents. The hay crop was heavy and was well saved, and it is believed that for quality and quantity it exceeds that of any previous year. It is worth $10 or $12 a tun, in bales, delivered at either of the above named towns.

Aggregate value of hay the present year			$125,000
Corn	220,000	bushels.	120,000
Wheat	90,000	"	125,000
Rye	5,000	"	4,000
Barley	3,000	"	3,500
Oats	105,000	"	42,000
Making an aggregate of			$419,500

We have no means of ascertaining the number or value of the different kinds of stock exported from our county this year. In numbers they may have equalled that of any previous year, but in value they were greatly diminished. The most of our farmers were compelled to sell their cattle and hogs, which were intended for beef and pork, before they were fatted, at greatly reduced prices, owing to the failure of corn and pastures from drouth.

The potato crop proved an entire failure. Ordinarily the Irish and sweet potatoes raised in our county are worth 30 to $35,000 annually. This year's crop will scarcely furnish seed for the next year.

The following is an exhibit of the financial condition of our Society, as shown by the annual report of the Treasurer:

Balance on hand at last annual report		$547 60
Received for badges of membership		230 00
Received for tickets of admission		193 25
Received of county treasurer		50 00
Donations for fitting up the fair ground		60 00
For lumber sold		50 00
Making the sum of		$1,230 85
Paid for premiums	$320 00	
Paid for fitting up fair grounds	734 65	
Printing and incidental expenses	30 00	
		1,084 00
Balance on hand		$144 85

We have located the place for holding our Fair for five years, and have inclosed about five acres of ground with a permanent fence, and erected a sufficient number of shanties and sheds for the accommodation of as many as ordinarily attend.

Most of the farmers in our county are plodding along after the old sort; but few have adopted modern improvements or scientific farming, and these are isolated cases. But a spirit of inquiry is beginning to be manifested in different neighborhoods, and there are

many individuals anxiously seeking information relative to the best method of improved farming.

It has been the object and aim of the true patriot, in all ages, to elevate the character and standing of the agriculturist, and to make the pursuit of agriculture as honorable as the learned professions. That time will come when *labor*, *art*, and *science* will triumph and take its stand side by side with them. Then all will rejoice. Let us not, then, become weary in well doing; but let us be encouraged to put forth an increased effort to aid in the advancement of this noble enterprise, so auspiciously began, by collecting and distributing scientific agricultural intelligence, by which the labor of the husbandman, guided by the lights of science and aided by artificial improvements, shall be made to yield an increased abundance on all the varieties of soil, from the richest loam to the most sterile clay, and the wilderness places shall be made to blossom as the rose.

J. W. EGELSTON, *President.*

FRANCIS WORLEY, *Secretary.*

DECATUR COUNTY.

[EXTRACT FROM REPORT OF 1855.]

The Society held its fourth annual Fair on the 26th, 27th, and 28th days of September last, and we take much pleasure in recording the decided increase on this occasion, over past fairs, in the number of members and the superiority of the articles on exhibition. Fortunately, our Fair was exempt from the heavy rains of September, so calamitous to many of our adjoining sister societies at that period; and this, in connection with the unprecedented fertility of the past season, and the general interest now happily pervading all classes of our community, made our Fair more than its most sanguine friends had anticipated.

Our Society, since its organization four years ago, has been silently, though none the less certainly, exercising a most beneficent influence on all the industrial pursuits of our people—stimulating

the sluggish and indifferent, awakening the slumbers of old fogies, and diffusing abroad to the *many* the well matured though often costly experience of the *few*. These beneficent effects are specially manifested in our improved processes of farming—in the introduction of the very best agricultural implements, and the increased liberality and emulation among our first class farmers in the importation of the most approved breeds of stock. Already is Decatur county beginning to feel a just pride in the quality and number of our blooded cattle, fine horses, and fine wooled sheep; and the "end is not yet."

In making mention of the causes auxiliary to the success of our Fair, we here take great pleasure in putting on record our indebtedness to the ladies—whose manifold contributions of articles, and whose presence, were the most attractive features of the Fair—there being over 300 articles of ladies' handiwork on exhibition on this occasion.

The receipts of the Fair were about $1,000. Eight hundred dollars of this amount were paid out in premiums, and about one hundred and fifty dollars in necessary expenses, leaving a small balance in the treasury. Of the above amount on premiums about $500 was awarded in silver plate. As the question of the comparative utility of awarding silver plate and money is beginning to excite considerable discussion, we beg leave to state that our experience does not justify the policy of awarding so great a proportion of premiums in plate as our Society did the last year. The distribution of silver ware, we find, does not give the same satisfaction as the same amount of money, especially to that class of winners wherein there is considerable outlay of time and money in fitting the article for exhibition. We find, however, that first class farmers, especially those who have the ability to import stock, usually prefer the honors of the silver goblet to the same amount in cash.

The following is the list of officers for 1856:

President, W. W. Hamilton; Vice President, J. E. Houser; Treasurer, B. H. Harney; Secretary, D. Batterton.

All of which is respectfully submitted.

J. D. WILSON, *President.*

D. BATTERTON, *Secretary.*

DEKALB COUNTY.

[EXTRACT FROM REPORT OF 1855.]

In accordance with the rules and regulations of the State Board of Agriculture, the undersigned beg leave to submit the following report of the Dekalb County Agricultural Society:

Said Society was organized on the third day of January, A. D. 1854, with seventy-two members, and the following named persons elected officers thereof, to wit:

President, S. W. Sprott; Vice President, Robert Work; Secretary, John P. Widney; Treasurer, Joel E. Hendricks.

At which said time a constitution and by-laws were adopted.

On the first day of November, 1854, a Fair was held, at which a goodly number of citizens were present, and quite a variety of articles and animals were exhibited, giving promise of considerable interest amongst our people in reference to such matters.

A Fair was held on the 18th and 19th days of October last, at which there were many and various articles exhibited, and quite a competition for premiums, quite a large assemblage of citizens, and a very laudable emulation excited.

Our Society has excited quite an exertion amongst our people for the introduction of good cattle and horses, for the growth of which our county is better adapted than growing grain. Our Society now numbers one hundred and sixteen members.

S. W. SPROTT, *President.*

W. GRISWOLD, *Acting Secretary.*

DELAWARE COUNTY.

[EXTRACT FROM REPORT OF 1854.]

Our Society has continued its efforts to improve this great branch of industrial pursuit another year, but from the continued apathy of our farmers and mechanics, has not been able to accomplish all that its friends had hoped. Another cause, which operated adverse to our interests, was that this was the year of our general election, and was one of more than usual interest. It is impossible to interest the same persons in two popular movements at the same time, so that we suffered some on that account; but notwithstanding adverse circumstances, the Society is steadily, though slowly, advancing in strength, usefulness, and interest. We found that, on account of the frequent meetings for political speech making, it was impossible to get sufficient numbers of the farmers together to make it useful or interesting to get up agricultural addresses, so we have had none this year.

The Society has procured a fifteen years' lease on a piece of ground owned by the county—indeed bought by the commissioners for that purpose—at a nominal rate, and is proceeding to inclose it and erect the necessary fixtures in a permanent and durable manner, thus giving the Society a permanent and stable character.

The annual election for officers was held on the 4th of April, 1854, at which the following were elected officers of the Society for the year:

President, Hon. David Kilgore; Vice President, John Smith; Secretary, John C. Helm; Treasurer, Thomas J. Matthews.

The Society Fair was held on the 28th and 29th days of September, and was of increased interest and importance over those of preceding years, showing a decided and rapid improvement in the stock, &c., exhibited, and increased attention to the improvement of stock by procuring animals of good blood, and more attention to the details of good breeds and improved breeding, and proving also that more attention was being bestowed on the manner of farming; and that our former loose, slovenly, and careless habits were being reformed and giving place to systematic and scientific farming.

But we have much, very much to reform and improve, which will require time, as our progress will necessarily be slow, encountering as we do our full share of apathy, prejudice, bigotry, and stubborn attachment to old customs and habits.

STATEMENT OF EDWARD SHARP IN RELATION TO FLAX SOWN FOR SEED.

The white seeded flax seed was sown on ground a slightly gravelly loam, rather thin, shaded on one side. Plowed about four inches deep, about the first of April, and harrowed. Seed sown about the middle of the month, three-fourths of a bushel to the acre, and lightly harrowed. Most of it was harvested by cradling and threshed with horses. The quantity of ground was a few rods less than eight acres. The quantity of seed threshed, and cleaned on a common wheat fan, was 101½ bushels, or a trifle over 12½ bushels to the acre. The price obtained was $1.25 per bushel. Had it not been for the shading of one side of the field, I should have had ten or twelve bushels more seed.

The white seeded flax was said to not be good for the lint. Some of this field was pulled by my neighbors and treated in the usual manner for the lint, and by them pronounced excellent—superior to any in the vicinity of the common kinds—though in consequence of being sown thin it was rather coarse. I have no doubt, had the season been good as usual, and a little more care taken to prepare the ground, the yield of seed could have been doubled.

EDWARD SHARP.

September 28, 1854.

There was a statement of a crop of wheat made, but it has been mislaid.

Our Society numbered something over one hundred members the past year, and our prospects for usefulness are encouraging.

The principal crops raised are wheat and corn. The average yield of the former is about 15 bushels, though 20 is easily produced by greater care in preparing the ground and putting in the seed without manure. The average yield of corn is about 50 bushels to the acre, which may easily be increased by better plowing and working. Owing to the drouth, the yield of all crops has, this year, been below the average. The price of wheat at the different

stations on the railroad has, this year, been from $1.25 to $1.75 per bushel. Corn is now worth from 35 to 40 cents. Much of the corn raised in the county is fed to hogs by the farmers, and hogs are a staple with us. Hogs and wheat are the most important articles of import raised by our farmers, though a respectable business is done raising cattle and horses. Most kinds of fruit common to the west do well in our county. Owing to the difficulty of procuring trees, and other drawbacks incident to settling a new county, mixed with a good deal of carelessness on the part of the early settlers, the orchards are comparatively young and fruit scarce. Not near enough, one year with another, to supply the demand of the county is produced within it.

The accompanying abstract of the treasurer's report will show the state of the finances of our Society. We hope that, by another year after the one just commenced, we will have gotten our fair grounds properly inclosed, &c., and will be able to offer a more liberal list of premiums; and in this way, if no other, induce our farmers and mechanics to take more interest in the Society, and thus give it an increased impetus for usefulness.

We would have liked to have said something on this occasion in relation to the topography of our county, its soil, timber, productions, &c., but time forbids it now.

Respectfully submitted,

D. KILGORE, *President.*

JOHN C. HELM, *Secretary.*

ELKHART COUNTY.

[REPORT FOR 1854.]

The undersigned would transmit a brief report of the fourth annual exhibition of the Agricultural Society of this county, which was held on the 26th and 27th of October, 1854, in Goshen.

The weather, during both days, was remarkably pleasant for the season. An immense multitude of people, from all parts of the

county, were in attendance, and to all appearance highly gratified at the exhibition. The show of stock, if not as numerous, made up in quality, there being an increase of thorough bred animals, which proves that the influence of the Society is gradually extending itself. There was a fair show of farming utensils, wagons, carriages, &c.; in grain, not many competitors; in fruits, no fair has excelled this. In the dairy, domestic manufacture, and fancy articles, the show was satisfactory. An excellent practical address was made by James Davis, Esq., of South Bend. If the Society succeed in procuring grounds of their own and having them inclosed, with good sheds inside, it will not only place their exhibitions upon a permanent basis, but will increase the show of the productive industry of the county more than one half over any that have heretofore been held.

The drouth through the latter part of the season, and the unprecedented prevalence of sickness through the county, prevented as full an exhibition as was desirable; but the interest in the Fair seemed rather on the increase. Potatoes, buckwheat, turnips and cabbage, fell far short of an average crop. Wheat, corn, and oats were over an average crop. The high price of all kinds of produce rendered the failure of some but little felt by the farmer. Wheat commanded from $1.40 to $1.75; corn, 40 cents; oats, 37½ cents; potatoes, 50 cents, and other products in proportion. A heavy mast assisted the farmer no little in the fattening of pork.

The Treasurer's report at our last Fair showed the amount on hand to be $44.97; receipts on that occasion, $154; expended in premiums and otherwise, $126; balance in the treasury, $72.97.

Respectfully submitted,

C. L. MURRAY, *Secretary.*

FAYETTE COUNTY.

[EXTRACT FROM REPORT OF 1854.]

The following are the officers for the past year, to wit:

Newton Claypool, President; John J. Burk, Vice President; Samuel Heron, Secretary; Jesse Holton, Treasurer.

The following table, carefully prepared, and for which we are indebted to our gentlemanly county auditor, Mr. Job Stout, will show the number of acres of land in our county, its assessed value, the number of polls and voters, and other statistical information, which, though not required by our statute regulations to be given, cannot fail to be of interest and advantage to the general reader, and will be of essential service in comparing our rate of progress and degree of advancement with our sister counties of this State. By this table it will be seen that Fayette county, though among the smallest in the State in the area of her territory, is among the first in point of wealth, notwithstanding, to wit:

Number of acres of land	135,558
Assessed value of the same	$1,921,470
Assessed value of improvements	384,360
Assessed value of lands and improvements	2,305,830
Assessed value of lots and improvements	284,555
Assessed value of corporation stock	1,008,610
Assessed value of personal property	1,629,175
Total assessed value of taxables	$5,228,170
Number of taxable polls	1,558
Number of untaxable polls	599
Whole number of voters	2,157

It will be borne in mind that the above is merely the *assessed* value of the real and personal property. It has been estimated that the real or actual value of all property in this county would amount to quite six and a half millions of dollars. This last would be the result of an average estimate of thirty-five dollars per acre of all the lands, and this is considered a low estimate.

The annexed statistical table will exhibit the aggregate total of the several agricultural products, &c., of the county, as reported by the assessors for the past year, June 1, 1854.

Products, &c.	Number.	Value.
Horses, mules, and asses	5,522	$215,482
Cattle	11,402	113,306
Sheep	10,788	11,824
Swine	25,902	50,990
Bushels of wheat	31,670	27,299
Bushels of corn	348,944	84,940
Bushels of Rye	478	279
Bushels of oats and barley	24,116	5,864
Bushels of potatoes	6,571	1,920
Value of orchard products	.....	2,214
Tuns of hay	1,886	12,480
Pounds of wool	40,000	13,200
Carriages and other vehicles	1,823	80,549
Watches, clocks, and musical instruments	1,891	14,363
Value of farming utensils	.....	22,599
Value of household furniture	.....	128,933
Hogs slaughtered, Dec. 1854	23,000	204,297
Value of other personal property not included in any of above	.....	66,849

By the above it will appear that there is an increase of products generally over former years, especially in quantity of stock. That there is a decided improvement in the quality of all live stock is well known; and we feel flattered in feeling assured that this advance and improvement is chiefly attributable to the establishment of the Agricultural Society in our midst, and the consequent annual recurrence of the industrial exhibitions or fairs, which create and stimulate a generous rivalry and competition among our farmers and mechanics.

It is hardly necessary to state that great attention is and has been paid to several other articles of agricultural produce, and to the rearing of several minor species of live stock, and also to the several branches of the mechanical arts, which are not enumerated in the preceding statistical table. This fact will be sufficiently evident from the list of awards made at our last annual Fair; and while we

have not space here to mention, in detail, the several meritorious productions of the county, most honorable mention is due to Mr. Wm. D. Ross, as one of the largest and most successful breeders of fowls. Mr. Ross' coops exhibit the greatest number and the finest of the different varieties of perhaps any one in the western country—Brahmas, Shanghais, &c. But facts of this kind can be known, as before mentioned, from the lists of awards.

We have to report an attempt to establish an agricultural library in connection with our association. This is, however, as yet, but a small nucleus around which something may hereafter gather, and is the result of collections by the Secretary of Public Congressional Documents, reports of Agricultural Societies, &c. There is, perhaps, about one hundred volumes. We would suggest that some pecuniary provision should be recommended by our State Board to the Legislature, to aid agricultural societies in the establishment of purely agricultural libraries.

Our Society has now been in existence for more than three years. In that period its affairs have been prosperous, almost beyond precedent. One thousand dollars (in 1854, more) have been annually distributed among our citizens in the shape of meritorious premiums; and yet, notwithstanding this heavy expenditure, the surplus now remaining in the treasury is greater than at any previous period. This, together with our greatly augmented membership list, are facts that indicate the interest of our citizens in the institution and their appreciation of its benefits. Our experience has led us to believe that nothing is lost, but, on the contrary, that much is gained by offering and awarding premiums on more articles than usual, and by having those premiums at the same time large and remunerative.

In our success, we must acknowledge that we have been materially aided and encouraged by flattering notices from and the co-operation of the press generally, and particularly the "Connersville Telegraph."

Our Fair was last held, agreeably to announcement, on the 20th, 21st, and 22d days of September, 1854, near Connersville. The Fair was attended by crowds of interested and orderly exhibitors and spectators. The number present each day of the season has

been variously estimated at from fifteen thousand to twenty thousand persons. In some respects and departments the exhibition was not equal to that of former years, owing to the damage done to growing crops, &c., by the severe and continued drouth. Yet, considering the disadvantages, it was fully equal to the expectation of any and surpassed the expectation of most.

But of the Fair and what occurred, we will let Seth W. Swiggett, Esq., a disinterested spectator, speak, as he did editorially in the columns of his "Telegraph," in the issue of that paper of the 29th of September, 1854, as follows:

FIRST DAY.

Wednesday last, 20th inst., the first day of the Fayette County Agricultural Fair, was a memorable one in the history of our county. At an early hour, those persons who expected to exhibit articles and compete for premiums, commenced moving towards the Fair grounds. The grove selected for the Fair is about one mile north of town, and is a most lovely spot, easy of access, and most admirably adapted for an exhibition of the character for which it was used. About four acres were inclosed, and the Society had everything arranged in the most perfect style and very convenient, both for visitors and exhibitors. Too much praise cannot be awarded the board for their untiring exertions, not only to gratify all who might visit the Fair, but to render the exhibition one of the most superb character, and a credit to the county. The list of premiums was liberal in the extreme—vieing in number and value with those often offered at State Fairs.

This day was mostly devoted to entering stock, selling badges, arranging articles for exhibition, &c. The weather was of a threatening character, and visitors were not anxious to be out, although a very respectable number were in attendance—quite enough to lend interest and vivacity to the exhibition. Exhibitors got everything in fine order, and were fully prepared for the

SECOND DAY.

Thursday morn broke bright and fair, and everybody seemed to be on the lookout at an early hour. Yet early as the town folks were stirring, the country lords, ladies and lassies, seemed to have

got the start, for scarcely were we wide awake than we were astonished by the appearance of the country people. And such a stream did pour into the town, and up to the Fair grounds, from early morn till high noon. Fine carriages, with richly caparisoned steeds, costly barouches, buggies, gigs, and wagons—some on horseback, and not a few on foot. Men, women, babies and all, came in like an avalanche, till we imagined there was nobody left at home. The crowd was immense, and all seemed to be in fine spirits and the best possible good humor—all disposed to make the most of the hour and the occasion, well knowing that a Fayette County Fair comes but once a year.

Among exhibitors, this day was mostly devoted to the show and examination of cattle, jacks, mules, sheep, hogs, &c. The show of cattle was good. We noticed some noble specimens of the bovine tribe; but it is impossible for us to particularize. For further particulars we refer to the awards, which will probably be published next week. Among the hogs, there were some as fine as can be found in the State, and reflect great credit on our stock breeders.

THIRD DAY.

If anything, the crowd on Friday was greater than that of the day previous. Everybody that had been present either of the other days seemed to be on hand, disposed to see and participate in the sport of the last day of the big show. This day was set apart for the exhibition and examination of mares, stallions, &c. The collection was very numerous and remarkably fine. A casual observer would not have supposed there was so much fancy stock in the county. But there it was—spirited stallions, noble geldings, mammoth draught horses, sleek and beautiful brood mares, and symmetrically formed and active sucking colts. It was a fine sight, and a decided feature of the exhibition.

DESCRIPTION OF SADDLE.

The fine saddle, which was the object of so much interest and strife among the fair ones, was manufactured by Mr. John Casady, of this place. Mr. C. says its actual worth is $60—it having cost him full $47. It was full quilted, made of silver enameled leather, splendid silk fringe, gilded stirrup, backspring hoop, &c. It was

made of the very best material, and required a workman nineteen days to complete it. Mr. Casady pronounces it the best and handsomest saddle ever seen in America. It was viewed with pleasure and astonishment, by thousands, during the days of the Fair. We are pleased to know that we have mechanics in our midst capable of turning out such splendid work, defying the world to produce finer. We are informed by the Secretary that the elegant and costly saddle was donated to this Society by Mr. Casady.

The total receipts of the Fair were a little rising $1,600—eight hundred and thirty-seven badges were sold. This was fully equal to the most sanguine expectations of the Board, exceeding by far the receipts of last year.

Some departments of the Fair, we are sorry to say, were very deficient. This was more especially the case with the ladies' department, and the vegetable department. For the latter there was sufficient cause, as the long and powerful drouth of the past season completely blasted all kinds of vegetables, and a fine show in that department was not expected. But for the lack of interest among the ladies, we fear there is no good excuse. The list of premiums was certainly very liberal and attractive, and the Board hoped would produce much rivalry and an elegant display. This, heretofore, has been one of the most attractive features of county fairs, and we are at a loss to account for the decrease of interest manifested. It is not only in this county that this has been the case, but we notice complaints made in Rush, Union, Franklin, &c. We hope another year will witness a decided improvement in this department of the Fair. The display of fowls and farming implements was very good. We noticed some fine corn and wheat, and a few large potatoes. There were also some very large peaches and a few grapes. The Applegates had some fine carriages and buggies on the ground—no competitors.

But it impossible for us to go fully into particulars. The show of jewelry, tinware, fine bonnets, boots, pictures, hair work, and ornamental needle work, was fair, and contributed in a great manner to give the Fair an interesting and pleasing appearance.

Taken all in all, the Fair was one of which the farmers and mechanics may well feel proud. That there were some things dif-

ferent from what was expected, is not strange, and that some who expected premiums should be disappointed, is not to be wondered at. Where there is such a variety, and so many excellent things, it is difficult to decide; and is it strange that the committees should sometimes see different from exhibitors?

No address was delivered during the fair—Hon. Charles H. Test, the expected speaker, being busily engaged in court.

This we believe is a full exhibit of our doings for the past year, and a full compliance with the requisitions of the State Board.

The Society of Fayette county would offer her congratulations to her sister county societies, and to the members of the efficient State Board, for the marked and rapid advance of each and all parts of the State in agricultural and mechanical development—for that development which is the only true basis of substantial prosperity of States.

All of which is respectfully submitted.

SAM. HERON, *Secretary.*

Connersville, Ind., Dec. 30, 1854.

[EXTRACT FROM REPORT OF 1855.]

The annual Fair was held, agreeably to announcement, on the 25th, 26th, 27th, and 28th days of September, 1855, on the beautiful grounds of the Society adjoining Connersville. A new and hitherto untried feature was introduced, by unanimous action of the Board, into our last Fair, which has proved to be eminently wise and successful in its results. This new feature is, the opening up the annual exhibitions or fairs, for competition, to all who desire to compete—no matter from whence they come—or in other words, as the language of the day is, to make the fairs "open to the world." This has had the effect, as proved by our experience of the past year, not only to enlarge the sphere of the Society's usefulness, but to heighten, to an immeasurable degree, the interest of our exhibition; to increase the generous emulation of competitors; to forward in every way and promote the objects of our association; and, what

is by no means a matter of small concern, to augment the amount of funds in our treasury, and place the financial condition of our association beyond the reach of possible reverse or misfortune. We are happy to know that our association has led the way in breaking down the selfish and Chinese barriers of county or State lines—and even still happier to understand that all of the surrounding agricultural societies design to hereafter follow the precedent we have thus set.

Since our last annual report the Society has procured a lease, for eight years, of twenty-five acres of most eligible and beautiful grounds, for the use of the Society and its Fairs, adjoining the city of Connersville. These grounds have been highly ornamented and permanently improved. The whole twenty-five acres has been inclosed with a close boarded picket fence, seven feet in height, with suitable places on either side for the ingress or egress of vehicles and footmen. These grounds have been pronounced by divers persons to be the most eligible and best suited for the purpose of any in the State—a very large sum having been expended in their preparation. Our Society respectfully tenders the use of these grounds to the State Board, should your honorable body ever again adopt the ill-advised plan of migrating the State Fairs around the borders of the State.

I herewith transmit to you copies of the essays entered into competition for the premium in the past year, including the prize essay, by Albert Honeywell, a practical farmer, of this county, all of which you may publish should you deem them worthy. I also forward copies of the statements of the competitors on the best cultivated and improved farms, and also the statements of the successful competitors on grain crops, and the chief articles of staple produce.

An address was delivered before the Society and the assembled multitude, on the third day of our Fair, on invitation, by Governor Jos. A. Wright, which was well received; but the address being extemporaneous, no copy was furnished us for publication.

A large addition has been made to the number of members in the current year—the books showing the names of 1,547 members to have been enrolled. This will evidence its prosperity and the

high place the association has in the confidence of the community, as well as its increased facilities for usefulness.

The Society has opened a regular correspondence with the Agricultural Bureau of the U. S. Patent Office, at Washington, receiving therefrom and forwarding thereto large quantities of rare and valuable seeds and plants; and, also, furnishing to them information, statistical and otherwise, of the condition of agriculture, horticulture, wine growing, gardening, &c., in this part of the State, together with the process of culture, &c., generally practiced. We recommend that the State Board recommend to each of its subordinate societies the pursuance of a similar course.

I give below an abstract of the Treasurer's report up to this date, showing the financial condition of the Society for the year just expiring.

RECEIPTS.

Amount on hand from last year	$818 45
Amount received at Fair, 1855	2,480 50
Amount received from county treasury	20 00
Amount received from lumber sales, &c.	324 54
Total receipts	$3,643 49

EXPENDITURES.

Total amount of expenditures, including premiums, building fences, &c., and all other expenses	2,867 97
Balance in treasury at this date	$775 52

As will above be seen, that while our receipts have been almost incredible our expenditures have been enormous. This will be accounted for by the necessity of a large outlay in leasing and improving the Fair grounds before spoken of; and we regard it as an evidence of great and unprecedented success that such an outlay has not involved us in a large debt.

The recommendations of our last report are here again urged. While the last General Assembly empowered county societies to

purchase and hold real estate, there exists on our statute book no law directly incorporating them, and authorizing them to sue and be sued, &c. This is an oversight which we have felt the force of, and it should be remedied. We also recommended the incorporation of agricultural libraries, in connection with county or district agricultural and mechanical societies, to be under the control of their respective boards of directors.

Since our last report a considerable number of valuable books have been added to our library, which now numbers about two hundred volumes. With proper encouragement, by legislative enenactment, it is considered that such libraries can be rendered highly useful and efficient auxiliaries to the societies.

I give below a tabular statement of the productions of Fayette county, and of each township in the county, showing the number and value of each item or article of produce, and the aggregate in the whole county and each township. This statement is compiled chiefly from the reports of the township assessors made to the county auditor; and we are indebted to Mr. Job Stout, county auditor, for reliable data. This shows the amount of produce *raised* in 1854. It is not a full report, nor intended as such, but is only such an approximation as the assessors generally make to the actual amount produced. The amount of produce for 1855 will be much greater. But I give the statement.

A Statement of Produce, &c., raised in Fayette County, during the Year 1854.

Number.	TOWNSHIPS.	Horses.	Value.	Mules & Asses.	Value.	Cattle.	Value.	Sheep.	Value.	Swine.	Value.	Bushels of Wheat.	Value.	Bushels of Rye.	Value.	Bushels of Corn.	Value.	Bushels of Oats.	Value.	Bushels of Potatoes.	Value.	Bushels of Barley.	Value.
1	Connersville	68	$1,965	13	$397	432	$1,989	533	$561	3739	$6,979	10,456	$14,535	254	$201	121,284	*23,257	19,514	$4,997	1602	$1602	2227	$1695
2	Jennings	449	22,914	36	1230	987	8,434	1233	1803	5771	5,829	7,483	10,596	438	340	77,634	23,101	11,015	2,772	899	882	301	240
3	Jackson	530	32,788	13	648	1118	10,774	1674	1769	5451	6,738	10,653	16 027	837	742	95,149	27,963	14,864	3,834	782	782	30	24
4	Columbia	70	4,633	4	160	342	5,214	175	393	2456	2,914	12,730	17,466	90	67	67,360	22,425	7,014	1 836	957	934	120	90
5	Orange	385	22.728	6	180	1315	17,411	1474	2162	4811	2,836	10,064	14,581	348	258	71,400	27,815	10,566	2,436	778	778	240	182
6	Harrison	706	46,331	97	5487	2138	40,937	4737	5270	8274	19,308	11,130	14,878	303	227	128,136	38,462	13,826	3,457	1309	1309	130	106
7	Posey	650	32,500	5	300	1965	20.550	2040	2762	4255	8 321	10,953	15,220	250	197	120,450	22,960	12,461	3,001	998	998	160	121
8	Waterloo	352	16,095	3	245	528	9,661	1103	1106	2396	4,458	8,200	11,484	211	158	72,232	21,657	9,588	2,402	928	947	465	465
9	Fairview	428	16,344	3	81	1014	11,961	1530	1243	1286	3 407	2,515	2.515	20	10	37,980	7,879	1,625	388	559	587	6	2
	Totals	3639	196,288	180	8728	9839	126,964	14 499	18,169	38,439	60,790	84,184	118,302	2751	2202	791,625	214.519	110,473	26,133	8812	8820	3809	2925

Statement of Produce, &c.—Continued.

Number.	TOWNSHIPS.	Bush. Grass and other Seeds	Value.	Barrels of Pork.	Value.	Pounds of Bacon.	Value.	Val. other animals slaughtr'd.	Pounds of Lard.	Value.	Val. of Poultry.	Val. of Orchard Products.	Val. M'rk't Garden Products.	Val. home-made manufactures.	Tuns of Hay.	Value.	Pounds of Hops	Value.	Lbs. of Tobacco.	Value.	Pounds Wool.	Value.	Pounds Maple Sugar.	Value.	Gallons Wine.	Value.	TOTAL VALUATION.
1	Connersville	85	$962	2887	$24.569	10,900	$509	$3885	13,895	$987	$1115	$2065	$369	$32.140	902	$5,413	..	..	...	..	4,973	$1,459	906	$14	80	$80	$131,996
2	Jennings	104	166	....	921	.....	161	352	2,015	156	887	1563	192	155	538	3,643	5	2	...	..	2.425	729	....	...	..	....	103,500
3	Jackson	129	192	9	776	33.048	1639	803	14,939	1051	650	1397	618	427	660	3,888	3	1	548	43	3,652	868	....	....	3	1	128,473
4	Columbia	752	143	267	2,082	650	36	566	6,326	448	1735	674	412	11,182	481	3,29-	..	..	30	3	3,196	694	765	72	....	....	97,121
5	Orange	29	64	330	2.636	35 719	1389	102	9,067	795	2100	1231	254	1,052	376	2,742	..	..	...	..	4,544	1,157	350	36	....	....	125,756
6	Harrison	150	407	349	2 811	32 200	1330	732	9,660	701	812	2947	82	197	653	3,969	..	..	4	1	5,396	1,374	....	....	....	....	221,105
7	Posey	200	425	350	2,830	25,800	1000	850	8 981	715	950	1900	100	540	820	4,920	..	..	...	..	6 000	1,500	....	....	....	....	122,660
8	Waterloo	96	468	2127	17,628	13,766	592	420	4,820	338	554	413	461	121	419	2.451	..	..	...	..	2,289	1,014	....	....	28	18	92,630
9	Fairview	56	91	....	.....	.....	....	.....	.....	....	.....	.....	.....	.....	157	927	..	..	...	..	.....	.....	....	....	....	....	90,172
	Totals	1601	2919	6319	53,650	52.0-3	6656	7819	69.703	5121	8803	12 980	2488	45 814	5006	30,851	8	3	582	47	32,465	8,525	1390	121	109	'9	$1,113,373

I also herewith forward a tabular statement of the amount of produce, &c., on hand in the county on the first day of January, 1855. This, like the foregoing, is probably less than the actual amount, being derived from the same sources, but is at least a safe approximation or basis to estimate from. The amount on hand for 1st of January, 1856, will be much greater.

In the preparation of these lists much care and attention has been given, so as to have them as accurate as possible.

A Statement of Agricultural Products, &c., in Fayette County, on the 1st of January, 1855.

Number.	TOWNSHIPS.	Horses.	Value.	Mules & Asses	Value.	Cattle.	Value.	Sheep.	Value.	Swine.	Value.	Bushels of Wheat.	Value.	Bushels of Rye	Value.	Bushels of Corn.	Value.	Bushels of Oats.	Value.	Bushels of Potatoes	Value.	Bushels of Barley.	Value.
1	Connersville	726	$38,022	28	$1245	1,526	$15,454	2156	$2,1[illegible]	4179	$7,691	3302	$5,476	46	$74	43,077	$13,084	8155	$2,314	538	$525	1109	$823
2	Jennings	455	22,074	28	1095	914	7,507	1140	1,226	2710	4,245	1971	9,754	227	155	27,562	7,249	5674	1,409	296	362	111	61
3	Jackson	522	31,891	15	670	1,039	9,836	1652	1,497	3251	5,329	2559	3,622	219	115	32,772	9,833	6[illegible]	1,733	208	548	8	6
4	Columbia	521	20,877	4	120	1,104	7,630	2214	1,124	2601	4,258	1426	4,27	49	37	25,665	7,968	4709	1,085	121	321	290	217
5	Orange	765	9,122	5	145	983	9,[illegible]2	1147	1,219	2605	4,710	2199	2,861	106	79	19,7[illegible]9	6,066	414	1,069	338	3[illegible]	22[illegible]	167
6	Harrison	536	24,451	4	1720	1,463	16,350	1868	2,131	3333	6,247	2670	3,755	125	90	37,765	11,[illegible]41	5771	1,4[illegible]	445	441	7[illegible]	58
7	Posey	621	31,050	2	600	1,928	19,2[illegible]0	1202	1,504	3333	6,040	2321	3,4[illegible]0	259	188	40,712	12,136	7656	1,914	107	167	.....	.....
8	Waterloo	345	14,671	1	30	887	7,210	708	146	2,190	3,479	2370	3,461	127	96	26,902	8,2[illegible]6	6447	1,562	451	451	6	6
9	Fairview	319	15,535	15	415	897	9,348	1192	1,251	2122	4,091	1795	2,566	19	12	30,616	8,169	4140	1,057	2[illegible]0	220	.....	.....
	Totals	4233	$27,[illegible]	138	6,040	10,673	102,547	13,178	13,029	26,227	46,260	22,71[illegible]	3[illegible],213	1177	801	278,[illegible]70	89,011	53,499	13,151	3117	3106	1815	1323

Statement of Products, &c.—Continued.

Number.	TOWNSHIPS.	Bush. Grass and other Seeds	Value.	Val. of Poultry	Val. of Orchard Products	Val. Mk't Garden Products.	Val. home-made manufactures.	Tons of Hay.	Value	Lbs. of Tobacco.	Value.	Pounds Wool.	Value.	Pounds Maple Sugar.	Value.	Gallons Wine.	Value	No. of Carriages &c.	Value.	No. of Clocks, Watches &c.	Value.	Pianos, &c.	Value	Value Farming Implements.	Val. Household Furniture.	Val. Pers. Prop. not mentioned, except cash.	Total Valuation.
1	Connersville	11	$45	$655	$217	$3	$62	417	$2,434	...	..	394	$103	...	...	8[illegible]	$8[illegible]	363	$19,135	476	4,766	22	$[illegible]30	$3,174	$44,991	$16,[illegible]50	$182,505
2	Jennings	11	43	66	145	12	20	26[illegible]	1,845	50	$2	76	12	..	...	...	...	172	6,927	157	85[illegible]	...	...	8,245	9,[illegible]6	3,524	74,457
3	Jackson	5[illegible]	14[illegible]	703	207	76	239	33[illegible]	1,900	669	21	431	112	75	15	[illegible]	1	257	12,276	21[illegible]	1,192	26	8[illegible]	4,903	1[illegible],510	4,121	81,[illegible]
4	Columbia	53	150	45[illegible]	12[illegible]	22	52	23[illegible]	1,15[illegible]	....	.	266	67	....	...	...	....	175	7,19[illegible]	19[illegible]	1,377	10	65	2,484	9,375	2,759	73,075
5	Orange	52	48	319	16[illegible]	2	78	18[illegible]	1,089	...	...	333	91	...	...	...	....	157	7,036	144	81	1	25	1,897	10,657	6,142	73,978
6	Harrison	63	154	492	18[illegible]	1	.....	290	1,742	...	1	1000	245	...	..	...	..	208	10,1[illegible]	18[illegible]	1,25[illegible]	4	194	2,733	11,791	6[illegible]9	104,001
7	Posey	...	...	.....	....	....	.....	33[illegible]	1,9[illegible]0	....	...	.....	...	...	...	...	..	233	11,616	164	1,120		...	2,000	12,700	12,741	114,964
8	Waterloo	42	227	3[illegible]8	176	13	.....	22[illegible]	1,322	...	..	62	28	...	..	26	18	154	6,[illegible]8	134	5[illegible]	9	22	1,817	7,132	4,554	60,645
9	Fairview	42	129	2[illegible]9	93	...	.....	23[illegible]	1,420	...	...	.....	.....	...	...	...	..	139	5,785	13[illegible]	78[illegible]	1	10[illegible]	2,310	7,215	3,473	64,483
	Totals	304	229	78[illegible]1	1,[illegible]02	142	1000	2511	14,879	719	24	9,514	658	75	15[illegible]9		99	1257	86,358	1788	12,6[illegible]0	87	243[illegible]	20,623	131,825	60,184	$829,026

There has been a very large export of extra fine beeves to New York, during the past season, by Caldwell & McCollem, of this county. Unfortunately, the statistics of this exportation are not at hand, but it is hoped they will be furnished for the next report. The high price which is obtained for these cattle in New York, and the large orders received which it is impossible to fill, attest the superiority of our breed of cattle, and furnish conclusive evidence that the *merit* of the cattle is the reason why they *sweep the stakes* at all the fairs.

The number of hogs killed the present season, in Connersville, and packed here, is about 25,000 head. The average weight is 212 pounds. The average price paid has been about $5.75 per hundred pounds. All these have been slaughtered and packed at the house of J. Holton & Co.; the other houses not being in operation this season.

For the population and number of voters of the county I refer to my last report, as there has been very little change since then.

We send our greetings and congratulations to the State Board, for the late success of the annual Fair at Indianapolis.

We also congratulate our sister associations anew, upon the close of this agricultural year, and hope that by a unity of effort we may succeed in developing yet more fully the vast agricultural wealth of our noble State.

Respectfully submitted,

SAM. HERON, *Secretary.*

Approved by the Society, in open meeting, at the annual assemblage held Dec. 29, 1855.

MINOR MEEKER, *President.*

SAM. HERON, *Secretary.*

FOUNTAIN AND WARREN COUNTIES.

[EXTRACT FROM REPORT OF 1855.]

The District Agricultural Society composed of the counties of Fountain and Warren held their annual Fair at Attica on the 4th and 5th days of October. The amount of the receipts was about seven hundred dollars, and the expenses about six hundred dollars, leaving in the treasury about one hundred dollars. The officers for the year 1855 are:

President, G. D. Wagner; Vice President, James Williams; Secretary, Joseph Pool.

JAMES WILLIAMS.

FRANKLIN COUNTY.

[EXTRACT FROM REPORT OF 1854.]

The annual Fair of Franklin county was held on the last Wednesday, Thursday, and Friday of September last, being its third annual Fair. It was largely attended, and much interest manifested on the part of the farming community, with a very fair show of the different kinds of stock; but owing to the very dry season, the exhibition in the vegetable department was quite small, though much larger than was previously anticipated.

The annual election for officers was held on the first Saturday of February, at which time the following named officers were elected for the ensuing year:

President, Aaron B. Line; Vice President, John P. Brady; Treasurer, C. B. Bently; Secretary, James S. Colescott.

The receipts during the year ending Jan. 1, 1855, were	$1,082 29
The disbursements for the same time were.....	1,021 89
Balance in the treasury.....	$60 40

There has been a great waking up among the farmers of this county upon the subject of improving all the different kinds of stock, and introducing the different kinds of grain; but the raising of sheep has not received the attention it would owing to their destruction by dogs, and many of our farmers have given up the raising of them.

All of which is respectfully submitted.

AARON B. LINE, *President.*

[EXTRACT FROM REPORT OF 1855.]

The proceedings of the Society for the year 1855 commenced with the annual meeting on the first Saturday in February, when the following persons were elected officers for the year:

President, Dr. Rufus Haymond; Vice President, Ephraim K. Rockafeller; Secretary, M. J. Kelly; Treasurer, T. J. Tyner.

At this meeting the by-laws were so changed as to substitute quarterly meetings for monthly meetings, which had previously been held in different parts of the county, no two having been allowed in one township in succession; and the time of holding the annual meeting was changed from the first Saturday in February to the first Saturday in December. Beyond this but little transpired. It may be remarked, however, that it was not without some doubts as to its propriety that the monthly and migrating meetings were discontinued. The proceedings at them were of course not very uniform; but there was usually an address by one of the members upon such subject as he might choose; a report from a committee upon some subject selected at the previous meeting for discussion; and a discussion—generally conversational and familiar—upon the subject of the report. These meetings, and especially this feature of their proceedings, were both interesting and profitable, but failing to awaken as much interest in the particular localities in which they were held as was anticipated, and proving a heavy tax upon the labor of those throughout the county by whom the proceedings were chiefly conducted, it was thought advisable not to meet more frequently than once in three months; and the meetings have all been held at Brookville, the county seat.

The fourth annual Fair was held at Brookville on the 3d, 4th and 5th days of October. Encouraged by the success of former fairs, the directors felt authorized to increase the scale of premiums. The result fully justified their anticipations. The number of entries was much larger than on any former occasion. During the first two days the weather was unusually fine, the attendance large, and every thing seemed to be passing off with spirit and good feeling. But it rained copiously and almost incessantly during all of the third day. The number in attendance, and consequently the receipts, were much smaller on that day than they would have been if the weather had continued favorable. Yet, notwithstanding this unfavorable termination, the results of the Fair were highly satisfactory to the Society, and indicated a marked and permanent improvement in the general industrial pursuits of the county. The superior quality of the agricultural implements on exhibition indicated at once an improvement in the skill of the mechanic, and the taste and judgment of the farmer. The exhibition of grains was good; that of vegetables large and fine. In the ladies' department the display far surpassed that at any previous fair; and it was remarked by many who had attended neighboring fairs, that they had witnessed none where this department of ours was equaled.

The Society has experienced much difficulty in procuring satisfactory certificates from exhibitors of the manner, cost, &c., of the production of the articles exhibited. They have received none of peculiar novelty or especial value; and deem it improper to encumber their report with any that do not partake of one or both of these qualities.

On the second day of the Fair an able and interesting address was delivered by Hon. John M. Milliken, of Butler county, Ohio, which the undersigned regret their inability to furnish, not having it in their possession.

There were premiums offered for the best essay on agriculture. The first premium was awarded to John P. Brady, and the second to A. B. Line.

If the proceedings of the Society, and the display at the Fair have indicated an onward and upward progress in agriculture, the improvement has been still more strikingly manifested in its actual

pursuits. Stimulated by the high prices which have ruled for all kinds of produce to increased exertions, and favored by a fruitful season, the labor of the farmer has been abundantly rewarded the past year. The crop of corn—the leading staple of the county—was never so large in the aggregate, or so uniformly good. It may have been rather heavier on the "bottoms" in some former years, but then it was lighter on the up-lands. This year the bottom corn was good, and the up-land corn approached nearer to it than ever before. Wheat, the next crop in importance to corn, was generally very good; yet there was a partial failure in the north-eastern part of the county, many fields being seriously injured by the winter, and to a considerable extent by the fly. The yield of potatoes was also large, and the quality never better. But the undersigned have no means of arriving at the aggregate amount or value of these or other products before the Auditor shall have made his report from the assessors' lists.

Cincinnati furnishes an excellent and ready market for the farmers in the eastern part of our county, being about thirty to thirty-five miles distant. But the general market for the produce of the county is on the White Water Valley Canal, which, passing through the county from north-west to south-east, leads directly to Cincinnati. Prices on the canal range but a trifle lower than in the city, transportation on the canal being easy and cheap. Wheat was at one time as high as $2.00—at another as low as $1.00. But little, however, was sold at either of these figures. The average price has probably been about $1.55. A portion of the crop of corn for 1854 went off as high as 65 cents—that of 1855 has generally brought from 30 to 35 cents.

All of which is respectfully submitted.

RUFUS HAYMOND, *President.*

M. J. KELLY, *Secretary.*

GRANT COUNTY.

[EXTRACT FROM REPORT OF 1854.]

Said Society was organized on the 13th day of August, 1853, and adopted a constitution in pursuance to the law, which was

signed by about sixty-one persons, which has since been swelled to one hundred and forty-three persons.

The first Fair was held October 21st, 1853, a report of which, together with the particulars, will be found in the last annual report of this Society to the State Board.

On the 4th of March, 1854, the Society met and selected the following officers for the ensuing year, viz:

President, N. W. Frazier; Vice President, Robert Beatty; Secretary, Iredell Jackson; Treasurer, Zimri Reynolds.

The second Fair was on the 26th and 27th of October, 1854, and was attended by about two thousand persons, who seemed to take a deep interest in the exhibition, especially when it is considered that the Fair had been postponed on account of the sickness, and which had not subsided to a very great extent up to the day of the Fair.

The display of horses, cattle, and hogs was excellent, and some of each of the species exhibited was of as good a quality as can be found in the State.

The vegetable department of our home productions, notwithstanding the unfavorableness of the season for full development, was better than could reasonably have been anticipated, such as apples, corn, cabbage, sweet potatoes, butter, beets, &c. All things considered, the exhibition was highly creditable to the productions of our county and the industrial interests of its citizens.

The Society has expended something like $335 in fitting up permanently the fair grounds for future exhibitions.

The Treasurer's report shows the following financial condition of the Society:

Cash received	$401 59
Expenses	333 05
Balance in treasury	$68 54

The list of premiums awarded amounted to $128, a published copy of which is herewith forwarded.

The improvements in agriculture and household manufactures, further than what generally marks new counties rapidly advancing in wealth and population, need not be more particularly noted. The principal kinds of agricultural productions are wheat, rye, Indian corn, buckwheat, oats, barley, and potatoes. The aggregate cannot be ascertained with certainty. We give, however, an estimate compared with the census of 1850:

	Wheat.	Rye.	Corn.	Potatoes.	Buckwheat.
1850,.....	90,961	40,000	361,318	11,813	785
1854,.....	110,000	50,000	450,000	20,000	1,000

Our produce market is the Wabash and Erie Canal, from whence it is shipped to the lake. The Mississinewa river affords excellent water privileges, whilst numerous streams flowing into it run flouring mills the greater part of the year. Our people seem to experience no inconvenience for want of mill facilities.

Respectfully submitted.

N. W. FRAZIER, *President.*

JAS. A. STRETCH, *Secretary pro tem.*

[EXTRACT FROM REPORT OF 1855.]

The Grant County Agricultural Society was organized in August, 1853, and the first Fair was held in Marion, commencing on the 21st of October following. As an evidence of the prosperity of the Society, we would state that at that time the amount of cash received from all sources amounted to $206.05; at the close of our last Fair the proceeds amounted to about $386.08. It will be borne in mind that the unfavorableness of the fall for seeding, &c., on account of the extremely wet weather, operated very much against the farmers, as a general thing, turning out to the Fair last fall, although in numbers, interest, stock, &c., we think it would compare favorably with past years. The exhibition of hogs especially, was such as certainly did great credit to the county. There were also numerous competitors on farms, crops, cattle, horses, jacks, jennies, best variety of fruits, &c.

Isaac Vandevanter, Esq., on the second day of the Fair, delivered a very excellent address on the importance of agricultural or-

ganization, and of the great necessity of agricultural education. It was listened to attentively.

The Society has leased a piece of ground for a term of years, and fenced it with a good substantial board fence, whilst the inclosed part has been nicely and conveniently arranged and fitted up for the reception and exhibition of stock and articles of all descriptions. This arrangement has well-nigh, if not entirely, exhausted the treasury; but yet it was deemed advisable to pursue this policy as being the cheapest in the end. For several years to come the Society will not be at any expense in preparing for the Fairs, and we confidently anticipate a flush treasury hereafter. It is proper to state, however, that we have kept out of debt, and paid the premiums awarded.

Of the County.—The county is well supplied with water, stone, timber, &c. The land is generally undulating, and the soil rich and productive. The market is generally on the Wabash canal for grain products—hogs are driven to the Bellefontaine railroad.

Wheat.—This is an excellent county for the production of wheat. Last year our farmers harvested an unprecedented crop. The variety in use is principally the Wabash, although other varieties are introduced more or less.

Oats, Grass, &c., are produced abundantly, and what is not consumed at home, is readily disposed of to our neighbors.

Hogs.—This is a decided hog county, and the present year has furnished a greater quantity than any former year.

Corn is produced in great abundance in our county—portions of it is capable of yielding with any county in the State, although the crop is imperfectly cultivated. Our Society is doing much by way of engendering an honorable competition in farm productions, which we trust will result in producing a higher grade of cultivation. We are satisfied lands with us that now produce one hundred bushels of corn per acre, could easily be made to yield one hundred and fifty bushels, if farmers would pursue a different course. It is such results we hope to obtain through our agricultural organizations.

We congratulate the members of the Society upon the present cheering prospects of our infant agricultural organization, and con-

fidently trust that another year will place us where we justly belong, side by side with other and older counties in pushing ahead the car of agriculture.

From the Treasurer's report we learn that the proceeds of the Society for the past year have been as follows:

Amount received	$386 08
Expended to this date about	324 42
Leaving a balance of	$61 66

To be applied on further orders or claims, if any should remain unsatisfied.

The present officers of the Society are as follows:

President, N. W. Frazier; Vice President, John Hummell; Secretary, James F. McDowell; Treasurer, M. Bradford.

Respectfully submitted,

JAS. F. McDOWELL, *Secretary.*

January 1, 1856.

GREENE COUNTY.

[Extract from Report of 1854.]

After having held a few meetings, in accordance with previous notice, this Society was fully organized on the 14th day of November, 1853, adopting a constitution and by-laws, and electing the following officers:

Martin Wines, President; J. V. Codington, Vice President; P. Schultze, Secretary; J. M. Humphreys, Treasurer.

At the start, with only twenty-five members, the warm friends of the Society seen their number increase beyond their best expectations—before the close of the year we had one hundred and thirty-nine regular members on the roll. At the quarterly meeting held

in Bloomfield on the 28th of April, 1854, it was resolved that an annual Fair should be held on the 18th and 19th days of October, in Bloomfield, our county seat.

In consequence of the severe dronth last summer, a general depression prevailed in the farming community, yet at the Fair a more general attendance and interest was manifested by the members and community at large for its wellfare and general prosperity than could have been looked for under the oppressive circumstances. Crops of corn, wheat and all kinds of garden vegetables being very light, no samples were exhibited. A considerable number of horses, cattle, mules, and hogs were on the ground, some of them well worthy of the premiums offered. The manufactured articles were not abundant, but of good and substantial qualities. Some very excellent varieties of fruit were presented. Agricultural implements, such as wagons, plows, harrows, &c., were found for the inspection of the public, on which premiums were awarded. Some butter and cheese of superior qualities were also exhibited.

Now to speak of our first Fair in general, we must say that under the oppressed circumstances we can but be very well satisfied for this first effort, and should we have had another exhibition shortly after, at least three times the amount would have been exhibited. We feel confident that strong efforts will be made for our next Fair, and if Divine Providence should bless us with good crops, almost any article Greene county produces, either from the soil or manufactured, will be well represented.

The first day the awarding committees inspected the exhibited articles, and made their report to the Secretary. In the morning of the second day, Wm. Mack, Esq., addressed the community, followed by different other members, trying to rouse up the citizens of our county to join in an enterprise which is bound to give lasting benefits to the country.

Officers elected for the year 1854–'55:

President, F. B. Cressy; Vice President, John Jones; Secretary, Peter Schultze; Treasurer, Jos. Lyons; Librarian, H. Van Slyke.

In compliance with your request, we will answer some of the interrogatories in your circular:

1. *Wheat.*—The best variety of wheat for this county is thought to be the smooth white wheat, it being less liable to rust, and maturing earlier in the season. About one bushel, if sown by the 15th of September, is sufficient for one acre. The prevailing price during the present season has ranged from 75 cents to $1.25 per bushel. Our market place is at several points on the canal. Average yield per acre about twelve bushels. Considerable damage has been done this season by the Hessian fly throughout the county; the weavel also made its appearance in several places. It is generally believed by the farmers that late sown wheat is not often injured by the Hessian fly, yet there is no certain remedy known amongst us that will prevent the ravages of this insect. The common method to preserve wheat from the weavel is to thresh and leave it in the chaff till used.

2. *Corn.*—Several varieties both of white and yellow corn are raised. Yellow corn, in general, is thought best for stock, and white for bread or feeding swine. The manner of preparing the ground is by plowing with a two-horse or ox team, farrowing out about four feet apart each way, and covering with the hoe about two inches deep. Usual time of planting from the 1st to the 10th of May. When small it is hoed once, and generally plowed three or four times; some use the harrow. The yield in the bottom averages from fifty to sixty bushels—up-land, thirty to forty bushels per acre. Market price has been from thirty to fifty cents per bushel. A large portion of our corn is fed to hogs.

3. *Rye* is only raised in small quantities, partly for pasture. Barley, but very little seen in the county. Large quantities of oats are raised, and yield from twenty-five to thirty-five bushels per acre —price from thirty to forty cents.

4. In making meadows, the grass most preferred is timothy mixed with red clover. A large proportion of the meadows in this county are of red-top grass. If the weather allows it, the hay is fed to cattle on the meadows. Timothy requires about six quarts of seed per acre; red-top twice that amount. The yield is, timothy from one and a half to two tuns, red-top one fourth less. Most all the hay is fed to stock, which finds a ready market at home. The prices vary from five to seven or eight dollars per tun.

5. It is believed, with regard to the product of butter and cheese, that one cow will yield from seventy-five to one hundred pounds, besides raising her calf. Both are about alike in price, say from eight to twelve cents per pound.

6. Of neat cattle, we can only say that three years old sold from fifteen to twenty dollars per head, weighing from eight hundred to one thousand pounds gross. Good dairy cows sell in the spring from twenty to twenty-five dollars, in the fall they may be had for about three-fourths that price.

7. It is believed that the large sized sheep is most profitable both for mutton or fleeces; a medium quality between coarse and fine wool is most preferred for domestic fabrics. At the present time, sheep is thought with us profitable stock, worth one dollar and fifty cents per head.

8. The Byefield hog is most esteemed by our farmers, either for home consumption or market. A considerable number of hogs are fattened in this county, part of which are packed along the canal. We consider the best method of curing bacon and hams to mix about half a pound of pepper and one pound of sugar with twenty pounds of salt to two hundred pounds of meat. Prices of pork, mostly mast pork, this season, four dollars per hundred.

9. Of hemp, very little or none is raised in the county. The blue potato and pink-eyes are thought to be much the best varieties —the former for any season, the latter for late use. The method of tillage, is planting in a good sized hill, and afterwards keeping them free from weeds. The average yield per acre from one hundred and twenty to one hundred and fifty bushels. On account of the drouth, the yield was very small, and hence the price was from one to one dollar and fifty cents per bushel.

10. In the culture of fruit great neglect has hitherto prevailed, hence fine grafted fruit is but thin over the county.

11. The eastern part of Greene county is rolling land, generally of a clay soil, partly underlayed with sand or lime stone. Large quantities of iron ore are found on Richland creek. Beds of stone coal are found in abundance. Almost every variety of timber may be found here. The western part of the county is generally undu-

lating prairie land, clay soil, producing large crops of corn, oats, and grass. Oak timber and hickory prevail. The bottoms of White and Eel river are of inexhaustible fertility. Large bodies of wet land are to be found in the south-western part of the county. The mode of draining the same, lately done by the State, has proved an entire failure; although much money has been expended, nothing in the way of reclaiming wet land has been accomplished.

All of which is respectfully submitted.

MARTIN WINES, *President.*

PETER SCHULTZE, *Secretary.*

HAMILTON COUNTY.

[EXTRACT FROM REPORT OF 1854.]

The following report includes a period of four years, being the transactions and operations of the Hamilton County Agricultural Society for that time; this being their first report to the parent board.

The Society was organized August 28, 1852, by adoping a constitution and by-laws, at the court house in said county.

Dr. T. T. Butler, President; M. D. Stoneman and Thos. Harvy, Vice Presidents; B. W. Williams, Treasurer; DeWitt C. Chipman, Secretary.

An interesting and instructive address was delivered by William Garver, Esq., at the Fair held at Noblesville, October 14, 1852.

At the Fair held at Strawtown, in October, 1853, L. Farly delivered an interesting address upon the subject of Agriculture at large, and compared the past and present comforts, improvements, and productions of our county.

County Fairs were held at Noblesville, on the 25th and 26th days of September, 1854, and the 10th, 11th, and 12th days of October, 1855, in a neat and tasty inclosure of three sides, with the placid river on the fourth. Stalls for horses and jacks, pens for

sheep and hogs, rings for competing animals and equestrians, long tables groaning with vegetables and brilliant with flowers, sheds and rooms for the display of ornamental needle-work and articles of home fabrication, with the life and bustle of a very large and well satisfied audience, gave *eclat* to the cause of Agriculture in this county, and causes increased interest in this great department of national wealth and grandeur. The Fair lasted two days, and continued with undiminished interest until the close.

It has been found impossible, in the hurry and press of business, to enforce and comply with the requirements of law, in propounding those series of questions expected on these occasions; therefore the practical information from our county is of little value to the State Board. Even the committee on farms have failed to make any report to the Secretary. In the derth of other matters I write the following general information. Hamilton county is situated along White River, with Cicero, Fall, Stony, Duck, and Bear Creeks, traversing it in various directions. White River, with considerable bottoms of rich and inexhaustible soil, meanders through the county from north-east to south-west, receiving in its course the above creeks, with other numerous but small tributaries, which add immensely to its agricultural facilities. Few counties in the State can surpass this in the richness and productiveness of its soil. The farms generally are in a good state of improvement—more productive than ornamental. The farmers are increasing in intelligence, wealth and independence. The surplus productions are heavy, and consist of wheat, corn, potatoes, pork, beef, and all the cereals common to this latitude, which will compare favorably with any county of our age and inhabitants in the State.

The number of farms in the county is	1,261
The number of acres under improvement	56,254
The number of acres unimproved	131,371
Total improvements and implements	$1,095,024
Number of horses, asses and mules	4,330
Number of cattle	7,809
Number of sheep	14,929
Number of hogs	27,354
Bushels of wheat	64,872
Bushels of corn	663,903
Butter and cheese, pounds	155,526

Although our county has made but little noise in agricultural gatherings and books, she has steadily advanced her substantial interests, and from the above statistics we conclude she is not far in the rear of those who are foremost in the march of time.

An increasing interest is felt in agricultural, horticultural, and manufacturing affairs in this county, which is an auspicious omen for the future, a bright prestige of improvement.

Herewith is the address delivered at the Fair by DeWitt C. Chipman, for your disposal.

DE WITT C. CHIPMAN, *Secretary.*

January, 1856.

HANCOCK COUNTY.

The Hancock County Agricultural Society was first organized on the 6th of June, 1853, and held its first Fair in the town of Greenfield, on the 29th and 30th of September and 1st of October in the same year. The report of this first effort to arouse a spirit of honorable competition among the farmers of the county was by some oversight never forwarded. Suffice it to say now, that the effort succeeded beyond the expection of its most sanguine friends, and the interest awakened at the first Fair has been steadily growing and spreading, until we think the farmers of our county are as keenly alive to the importance of these gatherings of the people, where practical knowledge is received and imparted, as those of any other portion of the State.

The second Fair of the Society was also held in the town of Greenfield, in the month of September, 1854. The articles exhibited, in number and variety, exceeded the previous year fifty per cent., and in quality there was a manifest improvement.

The show of fruits and vegetables was very large, and considering the drouth which so generally prevailed, I am inclined to believe that few counties in the State could compete with ours in this year's products of the soil. A great portion of the surface of Han-

cock is flat, requiring heavy drainage, and it is getting it, and the large surplus of corn shipped in the course of the year, when we consider the amount of unimproved *absentee* land yet in the county, was evidence that in a dry season we can beat the undulating soil, while in a wet one, through the means of our drains, we can equal them.

I have no statistics at hand to show the amount of corn shipped from the crop of 1854, but all agree that it was fifty per cent. more than any previous year, besides feeding our usual amount of hogs. Perhaps the heavy mast of the season had some effect on the amount fed; yet granting this, the yield per acre was above an average.

The Society commenced their labors early in the year 1855, intending to spare no labor nor no expense within their means, to make the Fair of this year as attractive as possible. A large amount and variety of silver ware was ordered for premiums, and the list was published early and generally circulated. Governor Wright was invited to address the Society and the citizens generally, sometime during the summer, and in the month of June he responded to the call. A large assemblage of persons from every township in the county met him at Greenfield, and listened with marked attention to his able and instructive lecture. That the people were pleased and benefitted by the address of the Governor, there can be no doubt.

Our Fair was fixed for the 12th, 13th, and 14th of September, to be held on the ground of the Fair of 1854, and the officers of the Society made every arrangement for the accommodation of a large amount of stock, for the expression was very general that the show would correspond with the improvement known to have taken place during the two years past, in the quality of stock generally, and horses and Durham cattle particularly. The number of entries exceeded that of 1854, nearly as much as that year had beat 1853, comprising every species of product adapted to our climate and soil. The ladies, too, contributed liberally of articles of taste and utility, of their manufacture. A good time generally was anticipated. The day before the opening of the Fair, the ground was covered with articles for exhibition, and the Floral Hall was literally crowded.

The morning of the 12th was cloudy, and the believers in the theory that the heavy firing of the contending armies in the Crimea produced the constant rains that distinguished the summer and fall of 1855, expressed the hope that the rival Generals would suspend operations for a few days. Their hopes were delusive. The firing, it is presumed, was continued, for the rain fell in torrents upon the Fair Ground, putting to flight most completely all the pleasure to be derived from the exhibition.

The officers of the Fair, the members of the Society, and the exhibitors fought bravely against the storm. The awarding committees made their reports in full, the published premiums were all paid, and although it exhausted the funds of the Society, the directory thought it advisable to award premiums on such special articles of merit as had not been enumerated in the published list.

The result of the Fair of this year, although unfortunate in a pecuniary point of view, has tested the stamina of the members of the Society, and proven that they are not to be deterred from their onward course, by difficulties and disappointments.

The directors at their last meeting resolved to appeal to the liberality of the citizens of the county for means to purchase and permanently enclose ground for a Fair. They have assurance from the townships that this appeal will be met in a kindly and liberal spirit.

The corn, wheat, and hog crop, has been an average one for 1855. The prospect of a low price for corn led to a wasteful method of feeding, so that the surplus for shipping may not be so great as in 1854, when every ear was carefully garnered, yet the yield per acre does not fall short.

Potatoes and garden vegetables were short this year, and in many of the crops of potatoes, a tendency to dry rot seems to prevail. The same remark will apply to fruit, particularly the apple.

Respectfully submitted,

JAMES TYNER, *President.*

JOSEPH MATHERS, *Secretary.*

HENDRICKS COUNTY.

[EXTRACT FROM REPORT OF 1854.]

The President and Secretary of the Hendricks County Agricultural Society submit the following report for the present year.

The Society entered upon the year under circumstances somewhat embarrassing. The treasury was empty, and a debt of one hundred and thirty-two dollars contracted last year, outstanding.

It has, however, been enabled to liquidate that debt, pay out over four hundred dollars in premiums, and meet all the demands and expenses of the current year, except some small claims, about equal in amount to the value of the silver ware and other premiums on hand for next year, and they will be paid early in the approaching season.

The Society is in a prosperous condition, numbering near three hundred of the best and most enterprising farmers and mechanics of the county.

It exerts a good influence, and will doubtless be the source of great improvement in the various industrial pursuits of the county.

The Society has revised its constitution during the present year, and will hereafter hold its annual meetings, for the election of officers and directors, on the third Wednesday in December, and hold quarterly meetings on the first Wednesday in March, June, and September.

It is the design to have an address delivered at each meeting, and it was resolved at the last meeting of the Society, to award a premium of five dollars to the member who would prepare and read at the next meeting, the best essay on either of the following subjects; provided there be three or more competitors.

1st—The raising of Bread Grains;
2d—The rearing and improvement of stock; and
3d—The management of the farm.

Such incentives will tend to the dissemination of knowledge in

regard to these several branches of husbandry, and perhaps furnish information worthy of a place in the next annual report.

There has been three addresses delivered to the Society during this year, to-wit:

One by Rev. Mr. Curry, on the 1st day of March;
One by Rev. Mr. Cole, on the 7th day of June; and
One by Rev. Mr. Burgner, on the 20th day of December.

The Fair.—The Society held its third annual Fair on the 19th, 20th, and 21st days of September.

The number of horses entered for exhibition, 142; and nearly all of them were of superior quality.

The stallions and brood-mares were excellent, and a more splendid selection of saddle and buggy horses cannot be found in any county in the State. But the exhibition of colts was not quite as good as that of last year.

The number of cattle of all ages, 109; mostly thorough bred, short horn, and some of them very fine, but some of the best cattle in the county were not exhibited.

The number of jacks, jennets, mules, swine and sheep, was not very large, but each tribe was represented by some of its best specimens.

The farming implements, though not very numerous, added much to the interest of the Fair. Among them were some excellent "Rounder Plows," made by Wm. Roseberry, of Danville, and one two horse plow, manufactured by J. K. Moore, of the same place, patented by R. A. Graham, of Preble county, Ohio, October 4th, 1853. This plow is decidedly the best that has been used in this county, the celebrated "Richmond Plows" not excepted. It is adapted to all kinds of ground, sod, trash, or stubble, and is changed to suit either by merely turning a screw. It will plow in any kind of soil without clogging, and will do the same work, with less power, than the Richmond Plow.

Mr. Moore has bought the right for this county, and is engaged in manufacturing these plows, so that the farmers of Hendricks

county can obtain as good plows here as they can at any other place in the State, or perhaps in the United States.

The merits of the plows exhibited by Mr. Roseberry and Mr. Moore, were tested in a plowing match on the third day of the Fair, and the premium awarded to Mr. Moore.

The vegetable productions exhibited were numerous and large, considering the dry season. Some pumpkins, melons, and potatoes of extraordinary size, and very fine specimens of the various kinds of fruits.

The ladies' department was well supplied with various articles of domestic manufacture—they did their full share in rendering the Fair one of interest and profit. The total number of entries was 400.

In some respects the Fair was inferior to that of last year, and in others it was much superior. Taken altogether, it was a very good exhibition, such as will do honor to the Society and county.

The ladies of our county, though not fanatical on the subject of womens' rights, are disposed to complain of the injustice done them in these agricultural fairs. And their complaint is not without cause; for it is a notorious fact, that while a *man*, for very little extra attention to an animal, often receives a premium equal in value to the animal itself; a *lady* is considered sufficiently remunerated for weeks and perhaps months of intense labor spent on some article of domestic manufacture, by a diploma, thimble, or at most, by some monthly periodical, filled perhaps with fictitious stories, worse than worthless, and fit only to excite a thirst for novel reading. This practice prevails generally among the county societies, and even in the State Fairs, but its impropriety is apparent, if we but consider the ultimate object of these societies. Their ultimate object is the comfort and happiness of man. This is the object of all reforms. In fact, it is the very end for which man lives and labors. Then what is the source of man's greatest comfort? Is it the possession of some blooded beast, or is it not rather in the enjoyment of a well regulated and neatly furnished home? If the latter, (which all must admit), the *ladies* should receive, at least, reasonable encouragement; for common sense would teach,

that by improving and enlarging the principal source of man's comfort, is the most direct and effectual mode of increasing his happiness. The argument holds good, if we consider only the benefit of *man* alone; but if we remember that we are equally bound to labor for the happiness of the other sex, it applies much more forcibly. This practice is an abuse of the power of one sex, over the rights of the other, which it is hoped will soon be remedied.

The premium on farms was awarded to Mr. Jehu Hadley, of Franklin township, but, unfortunately, the committee did not make a written report.

Daniel Davidson received the premium for the best five acres of wheat. It yielded about 20 bushels per acre, which was a good yield for the season. He gave the required certificate, but as he pursued the ordinary mode of cultivation, it is unnecessary to publish it.

Statistical.—The corn crop in our county is not good this year in consequence of the drouth. It averaged a yield of about 25 or 30 bushels per acre.

The wheat was hardly an average yield.

The oats and meadows yielded excellent crops.

By reference to the assessor's returns, it appears that at the commencement of the year, there were in the county, 5,570 horses, 573 asses and mules, 13,325 cattle, 48,250 hogs, 17,872 sheep, 107,707 bushels of wheat, and 911,824 bushels of corn.

It is impossible to arrive at a correct estimate of the amount of grain exported, or of the number or value of any of the different kinds of stock, unless it be the swine.

The greater portion of surplus grain is bought up at the different merchant mills in the county, and exported in flour and meal; but a large quantity is bought up at the stations along the T. H. & R. Railroad, and exported without grinding. Price generally $1.00 @ $1.50 ℔ bushel for wheat; for corn, 25@50c.

The hogs on hand the first day of January are generally all fat-

ted and sold or slaughtered for home comsumption in the fall; and it is very common for farmers to make their meat entirely out of hogs, pigged after that time.

We may safely calculate that 40,000 of those hogs on hand at the first of the year were exported from the county this fall. They would average at least 250 pounds per head, and at $3.25 per hundred, (about the average price), would bring into the county the very handsome sum of $335,000 00. But some of them were taken elsewhere to fatten, in consequence of the shortness of the corn crop, although the *mast* fully supplied that deficiency, and many were fatted on it and sold without consuming any corn.

There is more attention paid to, and more money realized by, raising pork, than any other one article, in this county. Yet, it is admitted on all hands, that it requires more labor, and is more injurious to the soil, than the raising of any other kind of stock.

There has been considerable improvement in the breed of hogs, (as well as all other stock), in this county, within a few years past. This is no doubt, in a great measure, the effect of the Agricultural Society.

The Society has convinced the unbelieving, that it is designed and calculated to do even them good.

It will not, therefore, have the same embarrassments to encounter that it has heretofore. It is now in a prosperous condition, and with proper management, will be the source of still greater improvement.

At its annual meeting on the 20th instant, the Society elected the following officers for the ensuing year:

Dr. Allen Furnas, President; Wm. H. Darnall, Vice President; Edmund Clark, Treasurer; James Burgess, Secretary.

The treasurer's report for the present year, the list of premiums offered by the Society, the rules for the government of the Fair, and the list of premiums awarded, were all published in the Danville Advertiser, as required by law.

Respectfully submitted,

ENION SINGER, *President.*

J. A. HARVEY, *Secretary.*

[EXTRACT FROM REPORT OF 1855.]

The Society changed the day for holding the annual meeting from the first Tuesday in December, to the first Tuesday in March, each year, and elected the following officers, to hold their respective places until the first Tuesday in March, 1857.

Dr. Allen Furnas, President; Jeremiah Linder, Vice President; James Burgess, Secretary; Edmund Clark, Treasurer.

To show the increasing interest manifested in agricultural matters, in this county, tabular statements are herewith presented of the entries of stock, &c., exhibited at the annual Fairs of 1853, '54, and '55, and of the receipts and expenditures of the Society for the same periods.

A LIST OF THE ENTRIES OF STOCK, &C., FOR EXHIBITION IN THE LAST THREE ANNUAL FAIRS OF THE AGRICULTURAL SOCIETY OF HENDRICKS COUNTY.

ENTRIES.	1853.	1854.	1855.
Cattle	64	109	119
Sheep	7	3	15
Hogs	17	11	14
Horses	145	142	195
Mules and Asses	45	14	18
Total entries	.....	400	689

A LIST OF RECEIPTS OF HENDRICKS COUNTY AGRICULTURAL SOCIETY.

RECEIPTS.	1853.	1854.	1855.
Cash and ware on hand	$43 60	9 39	$36 00
Cash for membership	287 00	263 00	347 00
Cash for tickets sold	263 38	288 52	378 00
Cash from county treasurer	28 00	115 00	50 00
Cash from sales	5 08	7 30	5 20
Cash from rents	10 00	5 00	2 50
Cash from ware not awarded	.....	.....	41 00
Cash from donations	50	.....	94 67
Cash from collections	.....	20 76	.....
Cash borrowed	150 00	.....	.....
Total receipts	$779 56	$708 97	$954 37

A LIST OF THE EXPENDITURES OF THE HENDRICKS COUNTY AGRICULTURAL SOCIETY.

EXPENDITURES.	1853.	1854.	1855.
Cash paid on premiums	$139 00	$408 13	$155 00
Cash paid for ware	82 40	.....	457 00
Cash paid for books	34 46	.....	2 35
Cash paid for printing	20 25	47 00	53 50
Cash paid on expenses	64 58	22 54	163 22
Cash paid on loan	25 00	132 63	.....
Cash paid on improvements	393 48	98 67	50 27
Total expenditures	$759 17	$708 97	$881 34

As the ownership of the show ground will enable the Society to make permanent improvements for the accommodation of visitors and the housing of stock, &c., a committee has been appointed to select a location in the neighborhood of Danville, and to purchase not less than six nor more than twelve acres of ground, and have the same conveyed to the Society. And should such purchase be made, it will put the Society in debt some eight hundred or one thousand dollars; but such is the interest now taken in the upward and onward progress of the Society by the principal agriculturalists of this county, that no fears of financial troubles are entertained on account of such indebtedness.

All of which is respectfully submitted.

JAMES BURGESS, *Secretary.*

Danville, January 1, 1856.

HENRY COUNTY.

[EXTRACT FROM REPORT OF 1854.]

The third annual Fair of the Henry County Agricultural Society was held at New Castle on the 11th, 12th, and 13th days of October. The attendance was much larger than that of last year, although during the second and third days it rained almost incessant-

ly, making it very disagreeable to exhibitor and spectator. Our Society is now regarded by all those who take an interest in it, as a permanent thing; and yet I am sorry to see in a rich agricultural county like that of Henry, where modern improvement and enterprise have done so much for the advancement of that art, so few who are willing to give one dollar a year to so noble an enterprise.

Cattle.—The number of entries in this class was one hundred and twenty-four, almost all of which were of superior quality and blood. The first purchases of fine cattle in this county were made from the best cattle growers in Kentucky, and more recently additions have been made from the imported stock of Lewis F. Allen, of New York; but among the younger class, the best have been bred within the county. The number of cattle in the county last spring, according to the returns of the township assessors, was 20,189. The surplus are either consumed in Cincinnati, or driven to the eastern market.

Horses.—There were of horses one hundred and thirty entries, and in this department I am proud to see our county rise above her surrounding sister counties; even "Old Wayne," the banner stock county of the State, was eclipsed by Henry at her late Fair, both in quality and numbers. The whole number in the county last spring was 8,318—surplus sold to drovers.

Hogs.—The entries were forty-two, and were generally of a very good quality. The number of surplus hogs shipped from Henry this year is not surpassed by that of any other county in the State. The whole number of hogs over six months old last June, as returned by the assessors, was 66,067, which were mostly sold by the the farmers on foot, and shipped to Cincinnati and other ports by railroad.

Sheep.—In this class there were twenty-six entries; which consisted mostly of Merinoes, Cothswools, and South Downs. Several lots of very fine sheep of almost every variety of wool have been imported to this county during the past year from Ohio and the eastern States. The whole number, as estimated by the assessors last spring was 27,689. The surplus was mostly consumed at Cincinnati.

Wheat, Corn, Oats, Hay, Grass Seed, &c.—The number of en-

tries in these several articles was forty-two. Of wheat there was not over a half crop this year. Corn is a full crop; some fifteen lots were exhibited at the Fair which showed that our farmers had been very careful in the selection of their seed. The acre which drew the first premium yielded *ninety-one* bushels, which is about thirty bushels more than the premium acre last year. Oats was a full crop; the premium acre yielded fifty-eight bushels. Hay a fair average. Grass seeds—several varieties were exhibited on the ground.

Fruits.—In this department the display was not so full and creditable as it should be. Apple culture is receiving more attention among our farmers of late years than formerly. Pear and grape culture is but little attended to. The peaches were mostly destroyed by the severity of the spring frosts.

Vegetables.—The number of entries in this department was unusually large, and the specimens were highly creditable to the county.

In the remaining classes the number of entries was near three hundred, among the most prominent of which were fowls, consisting of ten most improved breeds, butter, cheese, farming implements, domestic manufactures, the latter of which was in every respect creditable to our county and a silent but most eloquent eulogy upon the skill and industry of the wives and daughters of our farmers by whose hands they were mostly wrought. Furniture, carpeting, millinery, mantuamaking, artificial flowers, fancy needlework, etc., all of these were represented to a greater or less extent.

Our Society has been organized but little over three years, and already are its good effects felt in the agricultural prosperity of the county. New and improved breeds of animals are every where in demand; rare and valuable grains and seeds are being introduced and extensively grown; improved instruments of husbandry are now found in the hands of almost every farmer; and if these things continue, may we not expect ere long to see *every* farmer lay aside the prejudices of his ancestors and adopt the most improved means of agriculture, and prosecute the labors of his glorious pursuit in a scientific and systematic manner? Not a single grain waves its banner of green—not a tree bends with its blushing, golden fruit—

not a flower perfumes the gale with its spicy odors, that does not owe a richer value, a finer quality, a more delicious flavor, to the improvement of agriculture.

Let our agricultural society flourish—let every farmer and mechanic come forward with the products of his farm and shop to the annual Fairs. It is, indeed, a glorious sight to see the bone and sinew, the wit and beauty of the county, at the grand harvest home—to see them meet and greet—to hear them compare notes and results, and thus avail themselves of the experience of others to direct their future labors. Nothing to any mind, is a more pleasant sight than to see the true sovereigns of the land—the men who by honest toil extract from the earth the wealth that feeds and clothes the millions; and the lords of the workshops who, by their skill and ingenuity, contribute so largely to the wants and enjoyments of the people, meet together with their wives, their sons and their daughters, to spend a day or two of unalloyed happiness.

The officers elect for the ensuing year, are as follows:

President, Eli Murphey; Vice President, Thomas Wilhoit; Secretary, Samuel Hoover; Treasurer, Elisha Clift.

All of which is respectfully submitted.

G. W. LENNARD, *Secretary.*

HOWARD COUNTY.

[EXTRACT FROM REPORT OF 1855.]

The Howard County Agricultural Society was organized at the Auditor's office in Kokomo, on the 22d day of December, 1855, by electing the following officers, viz:

William Calhoon, President; Benjamin Fawcett, Vice President; Levi Mills, Secretary; Hiram J. Thompson, Treasurer.

The Society at its organization numbered over fifty members, and considerable interest is manifested by the citizens of the county.

The first exhibition of the Society is expected to be held between the 1st of September and 1st of November. A committee of three was appointed to select a speaker and call meetings when they deem it necessary. Thomas J. Harrison, Corydon Richmond, and O. B. Hensly, committee.

Not being able nor prepared to furnish any reliable statistics of interest to the Board, I respectfully submit the above report.

By order of the Society,

LEVI MILLS, *Secretary.*

HUNTINGTON COUNTY.

[EXTRACT FROM REPORT OF 1854.]

I have no other way of ascertaining the products of the county than to refer to the Auditor's report of agriculture. There we find the following, as made out June 1, 1854:

Products.	Number.	Value.
Horses, mules, and asses	3,234	$128,317
Cattle	8,102	66,725
Sheep	6,738	7,036
Swine	33,012	52,028
Bushels of wheat	96,300	86,926
Bushels of corn	380,368	96,355
Bushels of rye	1,890	666
Bushels of oats and barley	52,733	11,665
Bushels of potatoes	30,053	7,357
Tuns of hay	3,860	17,502
Pounds of wool	4,531	1,273
Total valuation	.....	$475,850

But, on account of prices being much higher at present than they were when the report was made, the above will fall far below

the value of the products of the county at this time, as the wheat crop is near an average one, and has sold, upon an average, at $1.30 per bushel. Our corn crop has been good, and sold at from 31 to 48 cents per bushel.

As our last autumn was rather unfavorable, on account of the sickness that prevailed over the land, our Fair was not as well attended as it otherwise would have been; but, unfavorable as it was, there seemed to be more interest manifested than was looked for. There was some very fine stock on the ground.

On the evening of the 17th, an address was delivered by Rev. A. Johnson, upon agricultural interests. The meeting was well attended and gave general satisfaction.

JOHN BECKER, *President.*

S. W. HAWLEY, *Secretary.*

JAY COUNTY.

[EXTRACT FROM REPORT OF 1854.]

In compliance with the law making it the duty of county agricultural societies to make reports to the State Board, we, on behalf of the Jay County Agricultural Society, beg leave to submit the following report, for the year 1854:

At a meeting of said Society, held at the court house in the town of Portland, on the first day of June, 1854, for the purpose of electing officers for the ensuing year, the following gentlemen were declared duly elected, to wit:

Jacob M. Haynes, Esq., President; John J. Adair, Vice President; Ira Denney, Treasurer; H. P. Hanna, Secretary; Thomas Black, Corresponding Secretary.

At a subsequent meeting of the board, held in the town of Portland, on the 29th day of June, 1854, the scale of premiums was declared, and that the second annual Fair of Jay county should

be held in the town of Portland, on the third and fourth days of October, A. D. 1854.

The first day of the Fair was not so well represented as we could wish, owing to the inclemency of the weather, and, also, the progress of the day was retarded, owing to public speaking by the two candidates for Congress, Mr. Pettit and Mr. Slack, gentlemen of tact and ability, who entertained the citizens with speeches of considerable length.

The second day of the Fair was well represented by the farmers and stock raisers of Jay county. In the stock department, the exhibition was truly fine, showing a decided improvement in horses, cattle, sheep, and swine.

Horses.—We can say of this useful and noble animal, that the exhibition was very good in stallions, brood mares, and colts; showing a deep interest taken by our farmers to improve the breed of horses in this county.

Jacks.—These animals are also being introduced in various parts of our county. Mule raising is being looked to with some degree of interest.

Cattle.—There has been a great improvement in our county of this most useful animal. Many of our citizens have taken pains to introduce the Durham and crossing them with the native stock, making great improvement in the breed, while many are getting to raise the full blooded Durhams.

Swine.—We can say for this animal that the stock is improving fast; as those on exhibition will warrant us in the assertion that they (the rain-bowed, long-legged, long-eared, slab-sided wind-splitters, whose snouts are so long and slim that eating slop out of a jug would seem to be more a matter of apparent convenience than otherwise to this noted pioneer of Indiana and the west), must soon give way for, we may add, the more civilized hog—Grazier, China, &c.

Sheep.—There are some fine sheep in this county; but our farmers have not taken so much interest in the raising of this animal as

should be, owing, perhaps, mainly to those sheep destroyers, wolves and dogs, who often destroy whole flocks in a single night.

In the conclusion of our remarks, we will just say, in short, that the various branches not enumerated above were pretty well represented, and speaks well for a new county like unto Jay.

The amount awarded on premiums was about $65. The crops of last season suffered materially from the drouth, in consequence of which many farmers were discouraged from attending the Fair, that otherwise would have rolled up with a hearty good will. The fruit crop was almost a total failure.

It is hoped that at the next Fair we may be able still to improve in the exhibition of the various products of the soil.

All of which is very respectfully submitted,

H. P. HANNA, *Secretary.*

JEFFERSON COUNTY.

[Extract from Report of 1854.]

Since our last annual report this Society has held frequent meetings, which have been well attended, evincing a growing interest in the cause of agriculture. Our Society is steadily gaining warm and steadfast friends from among the masses of our citizens, of all pursuits. Not only the farmer and the horticulturist, but the mechanic, the artist, the merchant, and men from the professions, and the home manufacturer—all seem to feel that each is interested in this enterprise.

At the annual meeting of this Society, held at the court house in Madison, on the 27th day of October last, the officers for the ensuing year were elected, viz:

David C. Branham, President; C. A. Wise, Vice President; A. Daniells, Secretary; John G. Serring, Treasurer.

Our third annual Fair, held at North Madison, on the 5th, 6th, and 7th days of September, 1854, was well attended, notwithstanding there were two great hindering causes. The first, and perhaps the greater cause, being the excessively dry and hot weather, which had so crippled the crops in this county that many good farmers could not persuade themselves to exhibit specimens of their crops. The second cause was the fact that the State Fair was to be held at Madison so soon after ours, that many who otherwise would have attended our County Fair staid away for the purpose of attending the State Fair. However, the exhibition at our County Fair was very good, and the attendance exceeded the most sanguine hopes of its best friends. It was estimated, by good judges, that there were ten thousand persons on the ground each day.

There were one hundred and fifty premiums awarded, amounting to four hundred and fifty dollars; and so confident are we of our permanent success, that we have made arrangements to purchase twenty acres of ground, at a cost of $1,800. We have already expended twelve hundred dollars upon permanent improvements on the ground, and shall expend at least one thousand dollars more the coming season.

Our board of directors have already made out the premium list for 1855, amounting to over one thousand dollars. We have now three hundred members, and a good prospect for a large increase during the year.

The finances of our Society have been considerably increased by liberal donations from some of our fellow-citizens. We expended upon our grounds, last year, six hundred and fifty dollars; and the Society would still have been in a flourishing condition, financially, had it not undertaken the fitting up the grounds for the State Fair. But notwithstanding the unforeseen difficulties attending the fitting up that ground, and the heavy expense occasioned by the excessively high prices of labor and timber in the early part of the season, we still shall not fall much in debt—thanks to the very liberal donation by the city council of Madison. The whole amount paid for fitting up the ground for the State Fair was three thousand dollars. We feel confident that when we send up to your honorable board our next annual report, we shall have one of the very best

fair grounds in the State, and leave our finances in a favorable condition.

We have no means at hand by which to ascertain accurately the value of the different and various products of the county; but, from the best statistics at our command, we submit the following statements, which we believe will be found below the true estimate:

There are in this county about 1,500 farms, with about 80,000 acres of improved land, giving an average of about 54 acres of improved land to each farm. There are about 90,000 acres of unimproved land in the county. Value of improvements, $2,500,000.

We have about 6,000 horses and mules, 10,000 head of neat cattle, 17,000 sheep, and 22,000 hogs.

There is produced annually, in this county, about 60,000 bushels of wheat, 100,000 bushels of rye and oats, and 500,000 bushels of corn, (but this year not more than half a crop, owing to the drouth). There are produced annually, of Irish and sweet potatoes, about 10,000 bushels; barley, 1,400 bushels; butter and cheese, 260,000 pounds; hay, 9,000 tuns; clover and other grass seeds, 300 bushels; wool, 40,000 pounds. Value of products of market gardens, $10,000. Value of orchard products, $5,000.

Capital invested in manufactures, $600,000. Annual products of manufactures valued at $2,500,000.

At a regular meeting of the board, Dr. F. E. Suire was chosen delegate to the State Board, and D. C. Branham his alternate.

We might say much more, but fear that our report would be too lengthy without adding to the interest in the subject therein.

Respectfully submitted,

D. C. BRANHAM, *President.*

A. DANIELLS, *Secretary.*

JENNINGS COUNTY.

[EXTRACT FROM REPORT OF 1854.]

Having organized but in May last, and many of those whose positions led them to bear active parts in the operations of the Society being unused to the details of such a Society, we are unable to make that kind of a report which will be satisfactory to the Board and do justice to the farming and mechanical interests of our county.

The agricultural interests, we regret to say, have hitherto been neglected, to a considerable extent, in this county; but we are pleased to be able to report that a decided interest is being awakened—that our farmers are seeking out the best improvements and buying the best stock—that our mechanics have adopted for their motto "higher and better," and that the interest excited among the "lords of creation" is extending to our females, inciting them to add their attractions and varied ingenuities to our Fair.

The first Fair of our Society was held on the 21st and 22d days of September, 1854, at which time was presented quite a large amount of stock.

The agricultural and mechanical productions on exhibition were, it is regretted, not very numerous, but were of that class which do honor to their manufacturers.

Indeed, considering the drouth and the scarcity of money, the exhibition was not only creditable but really excellent.

The interest manifested by the citizens of the whole county, their seeming cheerfulness to do whatever would advance the interests of the Society, and the large numbers in attendance upon our Fair, give satisfactory evidence that the people of Jennings know and appreciate the benefits accruing from an united effort in behalf of agriculture, and lead us to hope that the day is not far distant when Jennings county will take a prominent position in agriculture in Indiana.

Upon a call for the organization of a Society, about one hundred and fifty members came promptly forward and were organized, according to law, and elected the following officers:

Edward Pitt Hicks, President; Manlove Butler, Vice President; Smith Vawter, Treasurer; James H. Vawter, Secretary.

Through the kindness of Mr. Allen Campbell, the Society was furnished with a beautiful tract of land, free of use for five years, upon which to hold their fairs.

The selection of the ground was most happy, being convenient to water suitable for drinking and for stock. The location was made without reference to the grounds being inclosed, or any money being advanced, the directors, taking the view that the Fair, being for the benefit of the whole county, should not be used with a view to build up sectional interests, but should be located at the most central point, where the most of the citizens would be drawn upon business. Deprecating the policy of making their fair a traveling menagerie, they have had a good strong fence and other fixtures put up, and have located it at least for five years.

Owing, as before hinted, to the inexperience of some of the officers, and particularly the Secretary, we are unable to comply with that provision required by the State Board, compelling competitors for premiums on crops, and other improvements, to furnish full and correct statements of the process and expense of the culture or production, &c.

Nothing could afford us more pleasure than to comply fully with all the requisitions of the State Board, and to contribute our share in compiling accurate statistical agricultural information. In future we hope to do this.

We would take the liberty of here suggesting that it would be desirable for the executive committee of your State Board, or some other committee appointed for that purpose, to compile a list of questions embracing the necessary information, so that there would be a uniformity, and that no important matter would be overlooked.

We would further suggest that it be made the duty of each county agricultural society, upon its organization, to report that fact to the Secretary of the State Board, and that upon such notice being filed with said Secretary, it be made his duty to furnish the Secretary thereof with a copy of the requirements of the Board, a list of all

necessary questions, and such other information as may be necessary to enable the officers to understand fully their business, and that he be allowed to collect a reasonable fee for such services from said county society. These suggestions are suggested by experience.

The ladies' department at our Fair was well filled. There were many articles well worthy of particular mention and commendation, but time and space will forbid such an extended notice.

Of one thing are we certain, and that is, that the handiwork of the daughters of old Jennings will compare favorably with that of any other county.

There can be no doubt that our Society will be permanent, and that its usefulness will extend with its age.

It would, no doubt, be a good policy for each county society to publish, in a pamphlet form, the addresses delivered before them—the most accurate agricultural statistics of the county—a synopsis of the improvements exhibited at each fair, and, in fine, to publish everything calculated to aid in developing agricultural interest. It could add but little to the expense, and would certainly be of interest sufficient to repay that expense for every other year to have the assessor take upon his duplicate the occupation of each citizen and his average net profits per year from his business. And if it is not deemed advisable for each society to publish such pamphlets, would it not be good policy to make it the duty of the county commissioners, or the auditor, to make a synopsis of agricultural statistics and publish them at the expense of the county? Would not the benefit accruing to the county and to the State justify the Legislature in making that kind of provision?

The following is a statement of the agricultural products of our county. We have made them out giving the total amount in value, and number in each township in the county:

A Statement of Produce, &c., raised in Jennings County, during the Year 1854.

Number.	TOWNSHIPS.	Horses.	Value.	Mules & Asses.	Value.	Cattle.	Value.	Sheep.	Value.	Swine.	Value.	Bushels of Wheat.	Value.	Bushels of Rye.	Value.
1	Bigger	254	$10,985	4	$185	619	$6,043	714	$763	1,248	$2,204	1,022	$863	.....	.....
2	Campbell	397	12,417	6	325	924	7,589	795	1,019	1,987	3,367	1,006	911	145	$84
3	Columbia	321	13,940	7	400	810	6,700	599	612	1,698	2 000	1,145	984	130	62
4	Geneva	520	22,114	25	1,358	1,470	13,492	1.161	1,149	3,944	6,878	5,440	4,138	25	12
5	Marion	499	21,630	28	1,302	1,951	9,472	1,044	1,107	4,071	7,809	2,239	1,958	176	81
6	Montgomery	555	17,936	6	160	1,447	10,279	1,694	1,939	3.782	7.775	3,516	3,100	36	17
7	Sand Creek	391	12,459	.....	.....	968	7,112	580	591	1,740	2,646	2,539	2,207	13	6
8	Spencer	545	21,175	6	195	1,545	12,385	1,236	1.068	3,768	7,308	2,901	2,551	29	10
9	Vernon	823	38,988	24	1,320	2,087	20,791	1,996	1,985	5,450	9,102	2,496	1,821	24	12
	Totals	4,126	$171,648	106	$5,305	11,121	$93,161	9,819	$9,333	29 788	$49,008	22,454	$18,482	578	$266

Statement of Products, &c.—Continued.

Number.	TOWNSHIPS.	Bushels of Corn.	Value.	Bushels of Oats.	Value.	Bush. of Barley.	Value.	Val. of Poultry.	Val. of Orchard Products.	Val. home-made manufactures.	Tons of Hay.	Value.	No. of Carriages &c.	Value.	Bushels of Potatoes.	Value.	TOTAL VALUATION.
1	Bigger	11,976	$3,068	1,833	$467	...	....	$263	$153	$91	137	$819	92	$2 921	1,237	$344	$49,938
2	Campbell	12,801	3,918	2,838	792	12	4	332	102	163	116	724	69	2.687	686	161	42,930
3	Columbia	11,157	2,770	1,446	344	...	...	149	3	11	87½	437	84	2,331	513	117	27,606
4	Geneva	20,119	4,991	4.794	1,231	...	....	417	96	31	249	1,221	205	6,500	1,365	342	93,888
5	Marion	25 216	7,828	4,510	1,243	...	....	705	287	185	328¾	1,523	198	4,492	971	263	78,039
6	Montgomery	30,396	8,661	5 905	1,861	...	....	986	316	.....	322	1,937	181	7,093	1,239	340	100,947
7	Sand Creek	11,529	3,160	2,523	684	50	20	265	71	134	169	724	102	3,240	1,264	379	60 638
8	Spencer	24.131	7,209	5,412	1,476	...	....	586	91	25	332¼	1,663	172	4,931	1,786	443	76,562
9	Vernon	30,699	9,020	5,366	1,378	...	....	990	123	46	379¼	2,346	368	12 886	2,038	640	153,577
	Totals	177,964	$50 625	34,627	$9,576	62	$24	4,394	1,262	686	2,122¼	$11 442	1421	$48,970	11,080	3,009	$685,146

In addition to the foregoing, we find that there was raised in our county 480 pounds of tobacco, valued at the average value of 4 1-6 cents per pound; also, seven gallons domestic wine, valued at $1 per gallon. We also find that 104 bushels of grass and other seeds were raised, which are of the average value of $2.58 per bushel; also, 72 pounds of wool, of the average value of 23 cents per pound.

It is a source of regret that our Auditor of State has not prepared the proper blanks and books to enable our assessors to take a statement of all produce raised during a certain specified year, as our data then could be much more reliable.

And while upon this branch permit us to say, that every assistance within their power was cheerfully given us by our accommodating Auditor and Treasurer, Messrs. G. W. Swarthout and L. W. Todd, to whom we are indebted for our statistics.

In reference to the average yields of the crops during the past season, we would say that the corn crop was very light, there being many, very many fields that were never gathered. Of those gathered we presume the average did not exceed fifteen bushels to the acre; but this is mere guess work. Our wheat crop did better, but we are unable to give any reliable average. The potato crop was almost a total failure. The hay is not as good as in former years.

Wheat, in this market (Vernon), is commanding $1.50 per bushel; corn, 75 cents per bushel; potatoes, $1.00; oats, 35 cents per bushel; hay, $10 per tun.

Montgomery and Marion townships find their principal market at Paris, in the former township. Bigger, Campbell, and Vernon, find their market at Vernon and Butlerville. Geneva finds her market at Scipio, Queensville, and Vernon; Sand Creek, at Brewersville and Vernon; Columbia, at Zenas; Spencer, at Hardenburg, Buena Vista, and Vernon.

The mills buying principally the wheat of the county are those of James Goodnow, Charles Rust, John Kellar, and Joseph B. Newcomb, the latter of whom exhibited at our Fair a very fine specimen of flour, pronounced by the best of judges hard to excel.

The principal shops for the manufacture of buggies, wagons, &c., are those of Andrew Patrick, R. Leavitt & Co., A. L. Swarthout & Co., and Joseph Daviess & Brothers.

The only shops that we know of for the manufacture of plows are those of M. Butler & Co., and Joseph Daviess & Brothers.

F. B. Parker still manufactures, we believe, his patent "Hay Rake."

Pork is packed in Vernon by Smith, Vawter & Co., and in Paris by the Messrs. Dixons, and commands from three dollars to four dollars and fifty cents per hundred.

Robert Leavitt has quite an extensive fan factory, where large numbers are annually made and sold in this and adjoining counties. He also manufactures a plain but convenient straw cutter.

One of our largest exports is stone. We have an abundance of beautiful limestone for building purposes. We are unable to give the amount shipped from this county, but it is very large. We supply a great many to our less fortunate (in that respect) neighbors, in Johnson, Marion, and Bartholomew.

There are machines, which run by water and by steam, for the purpose of sawing stone suitable for caps and sills. Of those occurring to our minds we might mention favorably those of William Reed and Monroe McMindes.

While our farming interests seem to have received a new impetus, our mechanical interests seem partially dying. With the exception of plow and fan makers, very few of our mechanics make the work they sell. Perhaps we should have included in the exception wagon makers, carpenters and blacksmiths; but even these are not general exceptions.

It is a source of regret that our mechanics prefer more gaudy but less serviceable articles to those of their own manufacture, and we cannot but wonder that some people do not learn that the "most serviceable is the cheapest."

In looking over the treasurer's tax duplicate, I find that there are in Jennings county 1,848 tax payers; that there are 235,492 acres of land. We find that the total amount of taxables is $2,373,589, and that the amount of taxes paid is $18,708.

With the above statistical information we beg leave to submit our report.

Our Secretary, James H. Vawter, is elected delegate to your State Board for the year 1855.

JAMES H. VAWTER, *Secretary.*

[EXTRACT FROM REPORT OF 1855.]

The Fair of the Jennings County Agricultural Society was held agreeable to previous notice, on the 10th, 11th, and 12th of October, at Vernon. The weather was cold and dry for the season, but notwithstanding, the Fair was largely attended.

The exhibition of the different kinds of stock and poultry, the numerous specimens of grain and vegetables of various kinds, the many fine farming implements, together with the mechanics, and the ladies department, and last, though not least, the fine specimens of fruits, composed the exhibition of the second annual Fair of this Society, which was closed with the scene of the female equestrians who were contending for the premiums.

It was remarked by many persons, that they never saw so fine a lot of stallions at any county exhibition. The committee were at a loss which should be entitled to the first premium.

The brood mares, colts, and draft horses, though small in number, were fine.

The mules, jacks and jennies, were fine, and much admired by all stock growers present.

The cattle department was not very full. There were, however, some very fine specimens—one very remarkable animal was exhibited—a calf one year old giving milk. This being out of the general order, was viewed with wonder.

The gladsome countenances of the numerous ladies as they exhibited their specimens of the loom or needle, the dairy, &c., of which they exhibited some fine specimens, served to animate and interest all present.

There was evidently a deep feeling in the mind of every farmer present in this great subject. Many were the expressions as they left the Fair ground, that they would prepare for the exhibition of 1856.

The land of our county is well adapted to grassing and wheat growing, both of which are attracting the attention of our farmers. The wheat crop of 1855 averaged about twenty bushels per acre. Corn is grown to a good degree of perfection in some localities, which serves to prepare for market many fine porkers.

The farmers of this county are preparing their ground by applying manures and clover to produce wheat in a greater degree of perfection. The facilities which we enjoy from our railroad, enables our farmers to sell their wheat at fine remunerating prices.

The subject of wool growing is attracting considerable attention.

The difficulty that crept into our Society this year has retarded its progress, but we think that is healed, and our Society bids fair for a fine healthful action in future.

Our committees being all organized a short time before the day of examination, their reports were meager, thereby depriving us of the data to make a report in detail.

All of which is respectfully submitted.

EDWARD P. HICKS, *President.*

G. W. SWARTHOUT, *Secretary.*

JOHNSON COUNTY.

[EXTRACT FROM REPORT FOR 1854.]

This Society has, during the last year, purchased a tract of land of about sixteen acres, at $150 dollars per acre, which is well in-

closed; a beautiful site, and nearly paid for. Our people think some legislation on this subject of real estate owned by societies of this kind may be needed.

The statements of successful competitors for premiums on crops, and other improvements, are simply that the mode of tillage and process has been of the most common character. If the yield should appear to be large for the season, it is scarcely to be set down to the account of skill and industry, but to climate and soil.

The premium yield of corn, was 87 bushels.
That of wheat, 25 bushels.
That of grass, 2 tuns.

The principal agricultural productions of this county are corn, wheat, and grass. The staples are hogs, cattle, and horses. Perhaps no locality could have been much less favored with rain during the past season; yet wheat probably yielded three-fourths, and corn one-third to one-half a crop. Grass full average crop. Average yield of wheat probably ten bushels; corn, twenty-five bushels; hay, two tuns. Without other data than mere observation, it is almost presumption to venture statements of the aggregates of productions exported; with the understanding, however, that all is mere conjecture, they are made. It is likely the amount of wheat raised in this county and sent away in wheat and flour this season, will exceed seventy-five thousand bushels.

Wheat, 75,000 bushels, average price $1.25,	$93,730 00
Hogs, 20,000, average per head $7.00	140,000 00
Horses, 100, average price $100	10,000 00
Mules	4,000 00
Cattle	10,000 00
	$257,730 00

The principal towns are Franklin, Edinburg, Greenwood, Williamsburg, and Amity, besides several thriving villages. At the above named places the products of the county are mostly sold, except hogs, which are mostly purchased at the pens of the raisers. About 7,000 are being slaughtered and packed at Franklin.

The third annual Fair was held on the 28th, 29th, and 30th days

of September, was exceedingly well attended, and there can be little doubt that no occasion of equal pleasure and profit to our people has happened during the year.

The address of S. P. Oyler, which was listened to with great pleasure, is herewith remitted.

By the rules and regulations of this Society, voluntary membership is taken for one or more years, but only to the extent of payment. There are now three hundred and eighty-nine members; of these, one hundred and twenty-one have paid in advance for future years. The balance having paid only for one year, will not hold membership after the first of January, 1855; but at all times citizens of the county are entitled to membership for one year on payment of one dollar.

Having procured, fenced, and improved suitable Fair ground, and paid or having the means to pay all liabilities, hereafter the Society can distribute more liberal premiums, perhaps three times the amount which the last two seasons brought out. Our people think the prospects of this Society are very flattering, its promises of progress and usefulness, are in keeping with the prospective glorious destiny of our country.

Very respectfully submitted,

JAMES L. BRADLEY, *President.*

JOHN W. BRANCH, *Secretary.*

[EXTRACT FROM REPORT OF 1855.]

The following statement of the products of Johnson county, and their value, is taken from the assessors books of the several townships:

STATEMENT.

Products, &c.	Number.	Value.
Horses	5,516	$267,272
Mules, and asses	558	20,365
Cattle	11,590	107,567
Sheep	15,863	15,614
Swine	50,782	85,251
Bushels of wheat	116,340	131,215
Bushels of Rye	4,450	4,584
Bushels of corn	429,277	252,471
Bushels of oats	75,849	19,855
Bushels of potatoes	3,054	2,724
Bushels of grass seed	263	1,110
Barrels of pork	1,204	17,313
Pounds of bacon	354,530	18,568
Other slaughtered animals	.....	41,016
Pounds of lard	75,944	5,226
Poultry	.....	9,027
Value of orchard products	.....	8,436
Market and garden products	.....	2,688
Home-made manufactures	.....	147,100
Tuns of hay	3,707	17,835
Pounds of tobacco	3,916	162
Pounds of wool	16,230	5,122
Pounds of maple sugar	41,183	2,203
Gallons of wine	2	6
Carriages and other vehicles	1,317	66,021
Watches and clocks	1,864	17,286
Piano fortes	160	3,496
Value of farming utensils	.....	22,000
Value of household and personal property	.....	222,000
Total	.....	$1,613,513

JOHN W. BRANCH, *Secretary.*

KNOX COUNTY.

[Extract from Report of 1854.]

The annual Fair of the Knox County Agricultural Society was held at the court house in Vincennes, on Friday and Saturday, the 13th and 14th days of October, 1854.

Although our Fair did not manifest that improvement in comparison with that of last year that could have been wished for, yet, in view of the severe drouth through which we had just passed, and the depressed state of feeling in the farming community consequent thereon, the exhibition surpassed the expectations of some of its warmest friends; and, in view of all the circumstances, we have reason to be encouraged rather than discouraged.

The ladies' department was an improvement on former years, both as to arrangement, quality, and quantity of the articles presented. The quilts, blankets, tapestry, &c., were abundant and very superior.

The blankets, jeans, cassinetts, &c., presented by our enterprising townsman, H. D. Wheeler, manufactured by machinery at his woolen factory in the upper ward of the city, presented a new feature in our exhibitions, and occasioned some little excitement amongst our better halves, fearing that machine work would be allowed to come in competition with their own handiwork; but the Society quelled all their fears by deciding in accordance with their views, that is, that machine labor should not come in competition with hand labor. But inasmuch as all the articles presented by Mr. Wheeler were very superior articles of their kind, it was ordered that diplomas therefor be awarded.

The brooms manufactured by Mr. Stephen Burnet, at his broom factory one mile east of Vincennes, are deserving of special notice, as they far surpassed anything of the kind ever before presented in our market. The beautiful style of their finish, and the substantial manner in which they were put up, was enough to satisfy all that even the Shakers, with all their well deserved reputation for broom making, could be and were beat at their own game.

The field crops of our county have suffered severely from the drouth. The corn crop will not be over a third of an average yield, and consequently the hog crop will suffer with it; and were it not for the abundance of mast a large portion of the stock hogs would perish during the winter, but the mast will save a vast number that otherwise would have perished.

The potato crop is almost a total failure—in fact all of our crops have suffered more or less severely.

The number of paying members and the exact state of the treasury I cannot give you, as both of these are in the hands of the treasurer, and his report will not be made until the spring meeting of the Society, on the third Saturday of June, 1855; but from what I can learn the state of our finances is not very encouraging. Whilst many of the members manifest a praiseworthy zeal in sustaining the Society, others appear to have lost their first love, and are becoming lukewarm in their attachments, if not totally indifferent. They seem to measure the benefits of the Society from the amount of premiums drawn at the Fair, and not by its general and diffusive benefits amongst the great masses; and when they present an article at the Fair and do not get a premium, they feel that their labor is lost, and they want to be off. Such things should not be, but how are they to be remedied.

All of which is respectfully submitted.

A. B. McKEE, *Secretary.*

[EXTRACT FROM REPORT OF 1855.]

The Knox County Agricultural Society held its annual Fair at the court house in Vincennes, on Thursday and Friday, the 11th and 12th days of October, 1855.

The first day was devoted to the exhibition of domestic manufactures. These articles, though not as numerous as on former occasions, were superior in quality, and indicated much skill, not only

in the workmanship but in the selection of the materials. This was most apparent in the woolen fabrics, many of which were very fine.

The second day was devoted to the exhibition of the various specimens of grains and grasses, together with the different kinds of stock listed for premiums. In this branch of agriculture this county is fast improving. The horses, cattle, hogs, and sheep, on exhibition this year, would compare favorably with those of any other portion of our State. The horses were truly a source of pride to our citizens. Nearly every township in the county was represented. The cattle, hogs, and sheep were of the best improved breeds, and indicated, by their appearance, that their owners knew their value. The Hon. James D. Williams was said to have the largest four year old steer on the ground. The weight of this steer was about twenty-seven hundred pounds on foot.

The condition of the Society is gradually improving, and now numbers on list of members the best farmers and mechanics in the county, together with many of the business men of our county, who take an interest in the association.

That which the Society and citizens generally most regretted, at our last Fair, was that they were prevented by the high rates of railroad fare and frieghts from taking some specimens of our stock to our State Fair. It is truly to be hoped that, hereafter, by the experience of the past, our railroad companies will understand that it is better to aid the laudable efforts of the farming community of our State in improving their condition, and thereby improve the condition of every branch of trade, than to retard them by putting on fare and freights so high a tariff as to entirely prevent competition, to any great extent, on such occasions as that to which I refer. I believe that such was not the rule of conduct on most of the roads in our State upon that occasion, and it is to be hoped that ours will imitate the example of those who have learned that upon the prosperity of the farming and mechanical interests of our country depend, in a great measure, the value of the stock in their roads.

The Society is free from debt, with a small sum of money in its treasury, after paying out about $150 in premiums.

The Society contemplates, during the next summer, fitting up permanent fair grounds. When it has done this, it will be a source of revenue and add much interest to the association.

Our county, possessing a large scope of the finest uplands and bottom lands in the Mississippi valley, underlaid with almost every species of mineral ore—with excellent timber and inexhaustible coal mines—bounded on the west by the Wabash and on the east and south by White River, whose waters are always pure—and having innumerable advantages in water-power, as well in its interior as upon its boundaries—is fast becoming one of the wealthiest counties of the State.

For many years there was a market for almost every county in the State but Knox. The farmers here then received nothing, or the next to nothing, for the produce that they might raise, and, therefore, raised only enough to pay taxes and live on. Improvement of every kind seemed dead—not only dead, but the expression forgotten. But we have a market now. We are in direct communication with the north, east, south, and west; our produce brings a fair price at our doors, in *cash*, (not *goods*). Our farmers are becoming rich, and begin to remember that there is in the English language the word "*improvement*," and are applying it to everything connected with agriculture.

One of the greatest aids to the progress of our Society has been its frequent meetings and free interchange of views upon every branch of agriculture. In this way each member is enabled to bring to bear upon his farm the experience and observation of the whole country, which is an aid to the old farmer and of incalculable benefit to the young; for much that he thus acquires has been the result of a life's time observation and experience.

Respectfully submitted,

NATHANIEL USHER, *Secretary*.

LAKE COUNTY.

[EXTRACT FROM REPORT OF 1854.]

MRS. HERVEY BALL'S PROCESS OF MAKING CHEESE.

For cheese I place the night's milk in a cool room. In the morning take off the cream, warm the milk as warm as new milk, and mix it with the morning's milk; then pour in the cream through a strainer, then add the rennet and mix it thoroughly; cover it and let it remain still an hour; then cut it with a long thin knife from top to bottom in squares an inch thick; place over the strainer, and dip off a pail full of whey; heat it about scalding hot and pour over it; dip off again and heat, and while heating continue to dip off the extra whey until dry enough to squeak; then salt, about four ounces of salt to ten pounds of curd; then put the strainer across the hoop, put in the curd and press it two hours, then take it out, put on a clean strainer and press it about twenty-four hours; take it out, rub it over with melted butter, and place it on a shelf for drying; turn every day.

MRS. THOMAS CLARK'S PROCESS OF MAKING BUTTER.

We milk twice a day at regular hours; set the milk in the cellar in tin pans; take off the cream varying from twenty-four to forty-eight hours; churn with the old fashioned dasher churn; after butter comes wash it in two or three waters; one pint of dairy salt to fifteen pounds of butter; let stand till the salt is dissolved; then work with a butter machine till dry; pack in a firkin; when full lay on a cloth and cover with dry salt air-tight.

The condition of agriculture in this county has materially improved since the last report.

The wheat crop for the year 1854 exceeded by about thirty-three per cent. that of the previous year, commanding at this time $1.50 per bushel; yield from twenty to thirty bushels per acre; generally sown broad-cast, one and a quarter to one and a half bushels seed to the acre.

Oats.—The oats, like the wheat crop, of this county for the last year has exceeded that of any previous year from twenty-five to

fifty per cent.; commands 27 cents per bushel; yields forty to fifty bushels per acre; seed, two and a half bushels per acre.

Corn.—There has also been a large increase in the corn crop; not less than thirty per cent.; price about 40 cents per bushel; yield forty to sixty bushels per acre.

Also, a corresponding increase of pork and beef—pork commanding from $3.25 to $3.60, beef about $5. The crop of potatoes is unusually light; is worth 75 cents per bushel, and but few for export.

The cultivation of flax is beginning to attract the attention of some of our farmers for the seed alone, which commands $1.25 per bushel. Our soil is well adapted to its culture, a measured bushel of the seed exceeding the standard weight.

There is quite a manifest improvement in our breeds of sheep and cattle. A number of Durhams and Devons, and some entire herds of the former, have been brought into this county during the past year. Also, some superior flocks of Spanish Merino sheep. There is an increase in the wool crop, although the price is exceedingly low—about 25 cents per pound.

There is also a gradual improvement in the breeds of horses, and an increase in their number and value.

Dairy products form a large item in our surplus products. Butter 15 to 17 cents, and cheese 10 to 12 cents per pound, market value.

The large increase in our crops is mainly attributable to the increased quantity of land brought under cultivation, although there is a gradual and permanent improvement taking place among us, evincing a spirit of enterprise highly commendable.

Our surplus produce is generally marketed at Chicago, Lake Station on the Michigan Central railroad, and Calumet Station on the Michigan Southern railroad.

All of which is respectfully submitted.

JOSEPH P. SMITH, *Secretary.*

LAPORTE COUNTY.

[EXTRACT FROM REPORT OF 1854.]

In answer to the questions propounded by the State Board of Agriculture, the following brief answers are submitted:

Wheat.—A number of varieties are cultivated, the most reliable of which, and the one which produces the richest reward, is the Mediterranean—being the most hardy, and free from the ravages of the fly. The methods of preparing the ground, are summer fallowing and turning under a clover sod. Sowing on clover sod is considered preferable. Time of sowing from the first to the middle of September. The quantity of seed one bushel and a half per acre. Average yield for the last year twenty-two bushels per acre. The crops were secured principally by machinery. Reapers of a great variety of pattern and manufacture are used. The one patented and manufactured by Jacob Mann, of Laporte county, is perhaps more extensively used than any other. Threshing machines are universally used for separating the grain from the straw and chaff.

The usual places of market are Michigan City, Laporte, Rolling Prairie Station and Holmesville.

No. of bushels marketed in Michigan City	19,970
No. of bushels marketed in Rolling Prairie Station	20,000
No. of bushels marketed in Holmesville	5,585
No. of bushels marketed in Laporte	165,403
No. of bushels unsold (estimated)	300,000
Total	510,958

The average price which was received for all the wheat sold was about $1.40 per bushel. Total value of wheat crop $715,338.

Corn.—The varieties cultivated are the yellow, dent, and white. The ground is plowed either in the fall or early in the spring. Time of planting from the 1st to the 20th of May. It is usually plowed from three to four times. The hoe is seldom used after the seed is planted. The average product per acre this year about forty bushels. Cost of production, 12½ cents. The crop is marketed as follows:

At Michigan City	246,893 bushels.
At Laporte	415,003 bushels.
At Rolling Prairie Station	62,000 bushels.
At Holmesville	12,988 bushels.
Total	736,884 bushels.

The prevailing price 50 cents. Total value $368,442. The amount estimated to be in the hands of producers 245,628 bushels.

Oats.—The quantity marketed in Laporte for shipment was 25,-882 bushels, and in Michigan City 16,880 bushels. From other points of shipment we have no information—probably 100,000 bushels is produced in the county. Average value 25 cents.

Wool.—Two thousand two hundred and fifty pounds were marketed in Michigan City. A large amount is still in the hands of farmers, on account of the low prices paid last summer. It is estimated that there are 30,000 sheep in the county.

Pork.—The amount shipped from Michigan City in barrels 2,782 pounds, valued at 12 cents per pound, $33,384; in the hog, 255,000 pounds, at $3.75 per hundred, valued at $9,552.50.

Lard.—The quantity of lard shipped from Michigan City was 363 barrels.

High Wines.—Four hundred and seventy-seven barrels shipped from Michigan City.

Not having at hand the materials for making a more extended and explicit report for the year 1854, we refer you, for the most reliable and intelligent view of agriculture in this county, to the letter of Joseph Orr to Gov. Wright, President of the State Board of Agriculture, dated January 1, 1852, and also his letter to Gov. Wright upon the subject of draining the wet lands.

Our Society bids fair to be of greater benefit in future. Many of our farmers are beginning to realize the benefits of organization and interchange of sentiment. It numbers now about two hundred members, and its financial affairs are in good condition.

GEO. CRAWFORD, *President.*

[EXTRACT FROM REPORT OF 1855.]

The number of members of this Society, as indicated by the receipt of their annual fees, are but 262; and were we to take this number as the true test of agricultural interest in the county, it would show a great falling off from previous years. But our people seldom renew their membership, by the payment of their annual fees, at any other time than during our annual fairs; and as the weather was very unfavorable this year during that occasion, a large number were prevented from turning out who usually give the cause a hearty support.

In April the Society published their annual premium list, offering over $1,300 in plate, books, and money, for the best specimens of the articles therein named, which might be exhibited at their annual Fair in October; and, although the weather was extremely unfavorable throughout the fair, the amount of premiums awarded, as shown by the list, shows that the right spirit is abroad in the county.

REPORT ON FARMS, HEDGES, ETC.

Your committee appointed to examine farms, farm houses, hedge fences, orchards, &c., would respectfully submit the following report:

There were but two farms entered, one by Gen. Joseph Orr, and the other by Seth Way. We found both these farms in a very high state of cultivation, and all their improvements of every kind of the highest order. Their buildings, fences, gates, and the manner of laying off their farms in lots suitable for cultivation, were done with judgment and skill. Yet we found a difference—there being more means expended on one than the other. We were unitedly agreed in awarding to Gen. Orr the first premium, (cup, $10), and to Seth Way the second premium, $5.

There was but one plan for a house, and that was presented by Benajah Stanton. We examined the plan, and also the house, and found it entitled to more than ordinary merit; we therefore award to him the Society's premium, cup $10.

There were three entries of fences, A. M. Jessup, Irwin Jessup, and Benajah Stanton. Those entered by A. M. and Irwin Jessup were of four years' growth; they are admirably well set, some six feet high or more. We consider either of them a most formidable barrier against any animal on our prairie. We award to A. M. Jessup the first premium, $5, and to Irwin Jessup the second premium, $3.

Three orchards were entered; those of Joseph Orr, Irwin Jessup, and Alden Tucker.

We cannot speak too highly of the enterprise exhibited in our county in regard to the cultivation of fruit. We examined a number of orchards and found them all highly creditable to the owners. They have manifested much skill in all their arrangements, in pruning and in the choice and selection of fruit.

We cannot forbear speaking particularly of General Orr's orchard, containing fruit of every variety that can be cultivated in our climate, and also of the unsurpassed beauty of the shrubbery about his residence, and all the walks and alleys laid off with exquisite taste and beauty. For a statement of the management of his orchard, and great variety of fruit, we would refer you to his treatise on the cultivation of fruit.

The orchard of Irwin Jessup is a model for any fruiter to pattern, containing the finest specimens of fruit; it is kept very clean and is in a thriving condition.

A. Tucker's orchard had not been kept in so good repair recently, yet he has a great variety of splendid fruit, particularly pears.

Your committee would wish to call your attention to General Orr's minute description and practical mode of cultivation, both of his farm and orchard. He has set forth many practical results in his long experience in farming and in horticulture, with many geological features of the section of country where he resides, all of which is herewith submitted.

We would most earnestly recommend to the Society that they would cause to be published, in a suitable manner, his treatise in full.

B. M. NEWKIRK, *Chairman.*

Laporte, October 5, 1855.

REPORT ON FARM PRODUCTS, ETC.

Your committee appointed to award premiums on farm products, would respectfully submit the following report:

A number of entries were made for wheat, but few complying with the regulations, the remainder were left out.

The first entry is by General Orr, on white wheat and also on Mediterranean. He has furnished a very full statement of the manner of cultivation, kind of seed, &c. His management appears to be of the first order; yet, in consequence of the depredations committed by the fly and a storm of wind, which occurred just before harvest, reduced the yield somewhat below a medium in the white variety. On the part sown with Mediterranean was 26¼ bushels, but for the storm would have yielded some four or five bushels more per acre. For a full description of his management we would refer you to his statement herewith submitted. We therefore award to him, for the best ten acres of white wheat, the Society's premium of a silver cup worth $10. We also award to the same for the best ten acres of Mediterranean wheat $10. We awarded to Benajah Stanton, for the best one acre of Mediterranean wheat, $5.

There were a number of entries for corn; but few complying with the regulations were left out. The greatest yield of corn was by L. Shedd, of Galena township, producing 150 bushels to the acre for ten acres. We award to him a silver cup, $10. We also award to the same for the best one acre of corn, yielding 151 bushels, $5.

For further particulars we refer you to the general list of farm products, as it would be too tedious to copy all here.

B. M. NEWKIRK, *Chairman.*

La Porte, October 5, 1855.

ORR'S STATEMENT.

In offering for the Society's premium on ten acres of white wheat, and ten acres of Mediterranean, my object is more to lay before the Society a few facts about the management and yield of crops than to obtain the Society's premium. Indeed, I doubt the policy of awarding premiums, at any time, on articles of merely

ordinary merit, unless the facts connected with their production are of sufficient value to others to justify such an award; but as the entry, under the rules of the Society, had to be made before the 1st of July, and before the wheat had fully matured, I will, in every other respect, comply with said rules and leave the subject with the committee.

As the wheat all grew in one field, and on the same kind of soil, and in every respect the different varieties were managed alike, one statement will suffice for the whole.

The field contained thirty-seven acres, was of a light loamy soil, of medium quality; had been covered with scattering trees of burr-oak and hickory, with frequent patches of hazel; was brought into cultivation ten years ago; had produced three crops of wheat, two of corn, one of oats, and in March, 1853, was sowed to clover among wheat, all without manure. It was pastured in the fall of 1853, and up to the 1st of June, 1854, when everything was turned off, and on the 10th and 11th of June we sowed six barrels of plaster on twenty-eight acres, leaving nine acres without. Two barrels were of the Oswego and four of the Grand River plaster.

The clover grew well all over the field, but best on the plastered part, and by the 20th of July that on which the Grand River plaster was used was all lodged, that on which the Oswego was used but partially so, while the unplastered part stood up and was much lighter than either of the others. The whole was plowed under, six inches deep, between the twentieth and last of July, and the ground well harrowed over the first week in September. It was all sowed broad-cast, two bushels to the acre, and well harrowed in, between the 10th and 14th of the same month. The field had been carefully divided, before sowing, into three parts, across the plastered and unplastered parts—two contained twelve acres each and one thirteen acres. Twelve acres were sowed with the Hutchinson (white) wheat, twelve acres with the Soul (white) wheat, and thirteen acres with the Mediterranean. The fly made their appearance on both varieties of the white wheat last fall, but were confined to the parts not plastered. They appeared again this spring, all over both varieties of the white wheat; but the wheat grew so strong where it had been plastered that it was well advanced in filling before their effect began to show itself. The heavy winds and rains at the

commencement and during harvest, however, so prostrated the affected part that we were unable to gather it, and my best judgment is that three to four bushels per acre was left on the ground. The Mediterranean was slightly injured in a few places, but not to materially affect its yield.

We gathered and threshed the different varieties separately, and that which grew on the plastered parts separate from the unplastered part, but did not separate that plastered by the different kinds of plaster. The result was as follows: The Hutchinson wheat produced 7½ bushels per acre on the part not plastered, and 15¾ bushels on the part plastered. The Soul wheat produced 8¼ bushels per acre on the part not plastered, and 19 1-10 on the part plastered. While the Mediterranean produced 19¼ bushels per acre on the part not plastered, and 26⅛ bushels to the acre on the part plastered. I had used plaster frequently before with marked success, but had never noted its effects with the same care as on the present occasion; therefore, from the facts now before me, I draw the following conclusions:

1. That three-fourths to one bushel of plaster per acre, on lands which have produced grain for a number of years in succession, applied on a well set, growing clover crop, at some six inches high, and plowed under when the seed bowls have all turned brown, will add fifteen to thirty per cent. to a succeeding wheat crop over the same clover turned under without the plaster.

2. That the vigor imparted to the growing grain by the use of plaster, will, in a great degree, prevent the ravages of the fly on such varieties as the fly works most upon.

3. That clover and plaster, on most soils, are the cheapest manures that the farmer can use; yet he should not neglect the use of any others within his reach.

4. That had the whole field in question been sowed of one variety and averaged as above, it would have produced, without plaster, of the Hutchinson wheat, 286¾ bushels; of the Soul wheat, 305¼ bushels, and of the Mediterranean, 712½ bushels; whereas, had it all been plastered it would have produced, at the average above, of the Hutchinson 582¾ bushels, of the Soul wheat 706¾

bushels, and of the Mediterranean 966½ bushels, showing a difference between the lowest averages without plaster and the highest with plaster of 679¾ bushels, or some 18 bushels per acre. It is also worthy of note, that part of the field on which the Grand River plaster was used gave, to all appearance, a much better yield than where the Oswego was used; but as we did not thrash them separately I cannot say what the difference was. The cost of the plaster used in the present case, and of putting it on, was about $14, or 50 cents per acre.

JOSEPH ORR.

Sworn to and subscribed before me, September 8, 1855.

BENJ. KRESS, J. P.

REPORT OF COMMITTEE ON BUTTER AND CHEESE.

The committee report that there was a remarkably fine display of both butter and cheese; that where specimens are all good it occasions difficulty in awarding premiums. Every sample on exhibition was worthy of commendation. In awarding the premium on the best twenty pounds each, of butter and cheese, made by the same exhibitor, your committee regret that there was no second premium to be awarded, as it was altogether worthy. Would it not be well to offer first, second, and third premiums hereafter?

F. P. CUMMINS,
JNO. W. CUNNINGHAM,
JNO. SAILOR.

REPORT OF COMMITTEE ON FRUIT.

The committee report that they have examined the fruits on exhibition, which they found in great variety and of superior quality, the display of which was such as to do great credit to the fruit growers of Laporte county. The display, however, was less than at some previous exhibitions, owing to the great crop of fruit in the county and the general impression among growers that the tables would be overloaded. In their award the committee were quite unanimous.

S. VANNESS, *Chairman.*

YOUNG LADIES' CLASS.

Your committee have examined with great satisfaction the articles exhibited in this class, but regret that there was not a larger number of articles on exhibition, and that the very liberal encouragement offered by the Society was not more generally attended to. Still our young friends have presented many fine specimens of their handy-work. Among those which attracted general attention and were entitled to some suitable testimonial of the Society, was a pyramid of fancy shell work, manufactured by the Misses Vail. Great industry and perseverance were exhibited in its manufacture.

H. LAWSON, *Chairman.*

REPORT ON TRIAL OF REAPERS AND MOWERS.

The committee met at the Teegarden House in Laporte, at the time named in the Society's notice; present, Jacob R. Hall, West Darling, Seth Eason, and John F. Decker. Mr. Haskall not being present, his place was filled by the appointment of W. H. Whitehead.

The Society had offered their diploma and a silver cup worth $10, each to the best mower, the best reaper, and to the best mower and reaper combined, their merits to be decided by the committee named above on trial.

The entries made before entering the field for trial were E. Danford's Iron Grass Cutter, E. Danford's Double Sickle Mower and Reaper, manufactured by E. Danford & Co., Geneva, Kane county, Illinois, and J. J. Mann & Son's Mower, and J. J. Mann & Son's Mower and Reaper, manufactured at Westville, Laporte county, Indiana. These machines were all new, just from the shop, but their inventors were present ready to put them together and operate with them. Two other good machines were brought into the field too late to compete in the trial on reaping. These were Parmlee & Williams' Self-Raker and Reaper, manufactured in Brockport, N. Y., and the well known McCormic's Reaper and Mower.

The machines were conducted to the meadow of A. L. Osborn, Esq., adjoining the city on the south, which had been selected by the President of the Society as the field of trial for the mowers.

The grass was principally clover, mixed in places with timothy, red-top, and June grass. In some parts of the piece selected the grass was tangled and lodged, while the other part was light or medium. The bottom was very rough, and upon the whole a fair selection to test the merits of any machine.

Mr. Danford's machine was first in readiness and was first put on trial. He cut around the piece designated and then returned the swath, showing the capacity of his machine for taking up the grain trodden down by the horses and machine passing over it in opening his first swath. He then cut around the piece thus opened a number of times, and was frequently halted by the committee in the most heavy and tangled part of the grass, with a view of testing his power without backing from the standing grass in order to get up motion before again entering it. These stops and starts indicated the side drafts to be overcome, as well as any other means the committee had of judging. All of these tests were satisfactory to the committee.

J. J. Mann & Son's machine was next put upon trial. In following the cut of Mr. Danford's machine, the first time around, they caught up with the heel of their sickle some of the cut grass of the Danford machine, and had to stop three or four times to clean it away; but after the first round the work was equally as well done as the Danford machine. They were required to cut their own track through the standing grass, to cut a return swath, and finally to perform all the tests of the Danford machine, and in every instance acquitted themselves with equal success to the other machine. Indeed the two machines, in the performance of their work, were so nearly balanced in the estimation of the committee, and of the large concourse of people who had gathered to witness the trial, that they were put upon trial the second time, with no other result, however, than to satisfy all present that the working of the two machines were perfect; their work was perfect; that no other machine or mode of cutting grass could well be more perfect, and that the inventors had conferred a lasting benefit upon the agricultural community by their ingenuity.

The two machines being so nearly equal in their performance, the committee next directed their investigation to the cost, mechanical construction, and durability of the machines. While the costs

of the machines were nearly the same, and the mechanical part of both being good, their durability seemed to be the last point of consequence left to decide upon.

Here the difference is quite apparent. The Danford machine is nearly all of iron or steel, very compact in form, and so arranged as to be taken apart and stowed away in a small space when not in use; while the machine of Mr. J. J. Mann & Son is constructed of more perishable materials, occupies more space in the field or in shelter, therefore is more liable to decay or damage, especially in the hands of an unskillful or negligent operator, than the other. In view of these considerations, the committee feel it their duty to award E. Danford the Society's diploma and silver cup for the best mower.

At half past 12 o'clock a recess of one hour was proclaimed, at which time the trial of reapers was to commence. Prompt to the time the reapers were in readiness, as well as a large concourse of people—farmers, citizens, and strangers—all eager for the trial, confident from what they had witnessed in the forenoon that the contest was to be thorough and close.

The field selected belonged to James Andrew, Esq., adjoining the southwest part of the city; had been in corn the year before; presented the usual uneven surface of what is called "corn ground wheat;" was quite green enough to cut—heavy in some parts, light in others, but in the main about a medium crop, and the piece cut around was in a square form, containing some ten acres.

J. J. Mann & Son's machine first entered the field and was first put upon trial. They were conscious that some prejudice existed against their machine, in consequence of a failure to give satisfaction to some of those first got up by them; but from their subsequent improvements they were confident the machine now on trial would be hard to excel. Nor were they disappointed. During the four rounds which they were required to make by the committee, as a test, their machine worked with great ease and accuracy, showing an evenness of stubble, a certainty in saving all the grain, and a neatness and accuracy in its delivery, in suitable sized gavels for binding, that challenged the approval and admiration of all present. One of the great merits of this reaper is the perfect manner in

which the cut grain is delivered over to the binder. This is done by a moving canvas platform, passing under and in a transverse direction to the falling grain, dropping it into a concave quarter circle of some four feet in diameter suspended at the end, and so near as to catch the grain from the rolling platform, which, when full, is discharged from the concave to the ground by a sudden turn of a rake hung upon an axle and operated by a boy seated on the machine. The concave holds a fair sized sheaf when bound, and, when the grain is delivered from it, presents a row of gavels parallel to the standing grain, some twelve feet from it, and so perfect in form that no waste need follow the binding.

Mr. Danford's machine was next brought into the field, and in the four rounds which it cut acquitted itself with great credit. The working of the machine, and the evenness of stubble, was all that could be desired; but the delivery of the grain was from a platform by a rake worked by hand, therefore subject to that irregularity in delivery and form of gavel common to that mode of delivering the grain. Yet, with some slight alteration in the platform, which Mr. Danford readily perceived and admitted were necessary, we regard the machine one of the best, if not the best in use, of those whose grain is delivered by hand.

The next machine brought in the field was Messrs. Parmlee & Williams' self-raking Reaper. This machine excited great curiosity as well as interest, as a number of them had been sold in the county, yet none had been fully tested. The first round or two was so crowded with a large concourse of people, anxious to see its workings, that it was difficult for the committee to keep their regular position; but the heat of the day and want of water at length came to their relief and left the committee a tolerably clear field. Although the machine seemed to work well, yet it failed to impress the minds of the committee with that excellence which had been claimed for it. Its stubble was less even and free from scattered grain than either of the machines which had preceded it, and the delivery of the grain to say the least, was poorly done. Some improvement, however, may be made in both cases; but whether it can be made a durable and economical grain saving machine, we think is yet to be proven.

Next, and last in the field, was the well known McCormic Reaper. Its fame is too wide, its merits too well known, and its great usefulness too generally appreciated, for aught to be said against it; but had the inventor been on the ground to-day, he would have needed the support of all these proofs to keep him from "knocking under."

We had hoped for the presence, on this occasion, of the Manny Reaper. It has been much talked of through the press and by its agents; and although a machine of this pattern, of fine workmanship and highly finished, had recently appeared in the county, and the agent for Mr. Manny for this county was on the ground at an early hour in the day, yet we have failed to witness that test which is better to the farmer than "much talking."

In view of the trials before us to day, and the spirit and good feeling with which the contesting parties re-entered the field on their own hook, after the committee were through with them, we believe that the committee but reflect the sentiment of all present, when they record their unanimous voice in favor of J. J. Mann & Son's Reaper, as the best on the ground. Its many merits, also, as a grain saving machine; its closely contested claim to superiority as a mower with the Danford machine; its at least equally light side draft, both as a mower and a reaper, compared with any other, and the ease with which it can be turned at the corners of the standing grass or grain—balancing upon the master wheel as it were upon a pivot, establish its claims beyond a question, in the opinion of the committee, to superiority, as the best combination of reaper and mower of any in the field.

We therefore award to J. J. Mann & Son the Society's diploma and silver cup, for the best reaper, and to the same the additional award of the Society's diploma and silver cup, for the best combination of mower and reaper.

It is due to the Society as well as to the public to say, in conclusion, that the trial was under the supervision of the President and Executive Committee of the Society, who afforded all the facilities for a fair trial in their power to the interested parties as well as the public. The whole affair was conducted in a spirit of harmony and good feeling throughout.

J. F. DECKER, *Chairman.*

We regret that so little attention has been paid by exhibitors to our rules on crops—corn, wheat, &c., and on the products of the dairy—a full statement of their cultivation or manufacture being required. But few furnish them. Nor should any complain being ruled out for the want of those statements. Our object is to collect and publish, for the use of the Society, everything worthy of preserving on these subjects; and unless our producers will furnish the material, we have nothing but a list of premiums paid out to present.

Our annual Fair, with all the disadvantages of bad weather, &c., was a good one. The articles on exhibition, both in number and quality, were far in advance of any of our previous exhibitions; especially in cattle and in the products of the dairy—both were excellent. So with many other departments. The trial of reapers and mowers. in July, was worthy of the county and the occasion, a report of which is given above. Indeed in every department the spirit of improvement is onward.

Our annual address was delivered by Lewis Bollman, Esq. The hybridization of plants, grain, and animals, were leading features of his discourse, and were treated of with great ability. We have not as yet obtained a copy for publication. [Since received.]

As one of the requirements of the county societies, by the State Board of Agriculture, is, "a statement of the principal kinds of agricultural productions of the county," to be reported annually, we herewith submit the same. This statement is from the assessor's returns, which embraces the products of 1854. We have no way of arriving at a statement for this year before the return of next spring's assessments are in. The present year's products, both in quantity and in value, will exceed the last year's by some ten per cent. or more.

Products of Laporte County for the Year 1854.

Products, &c.	Number.	Value.
Horses	3,887	$239,751
Mules, and asses	218	3,651
Cattle	10,768	131,702
Sheep	13,515	19,830
Swine	14,248	32,487
Bushels of wheat	425,557	427,261
Bushels of rye	594	332
Bushels of corn	796,528	256,512
Bushels of oats	142,099	46,652
Bushels of potatoes	38,801	20,789
Bushels of barley	4,033	2,746
Bushels of grass seed	803	3,130
Barrels of pork	4,007	38,012
Pounds of bacon	48,350	2,752
Other slaughtered animals	.....	19,431
Pounds of lard	88,029	5,153
Poultry	.....	5,929
Value of orchard products	.....	10,002
Market and garden products	.....	3,430
Home-made manufactures	.....	224,566
Tuns of hay	8,331	49,231
Pounds of tobacco	583	69
Pounds of wool	35,364	10,952
Pounds of maple sugar	3,920	558
Gallons of wine	57	88
Total	.....	$1,565,065

We have also obtained the exports for the year ending on the 1st day of December, 1855, which is given below, and which, on account of the high prices commanded throughout the year, nearly equals the estimated value of all the productions for 1854.

EXPORTS OF LAPORTE COUNTY.

Articles Shipped from Laporte Station during the Year 1855, *and their value.*

Exports.	Number.	Average Value.	Total Value.
Horses	579	$100 00	$57,900 00
Cattle	6,591	50 00	329,550 00
Hogs	1,715	6 50	11,147 50
Sheep	1,046	2 50	2,615 00
Barrels of Pork	291	16 00	4,656 00
Barrels of Fruit	945	2 00	1,890 00
Pounds of Wool	58,300	32	18,656 00
Bushels of Wheat	256,578	1 50	384,880 50
Bushels of Corn	387,035	62½	241,896 87
Other articles	.....	.....	15,000 00
Total	.....	.....	1,068,191 87
Deduct for horses and cattle not raised in this county			$340,000 00
Leaving products of this county shipped at this point			$728,191 87

Exports from Laporte County for the Year ending December 1, 1855.

WHERE SHIPPED FROM.	Bushels of Corn.	Bushels of Wheat.	Bushels of Oats.	Bushels of Potatoes.	Horses.	Cattle.	Sheep.	Lbs. Wool.	Live Hogs.	Dead Hogs.	Barrels Pork.	Value of other Articles.
City of Laporte	387,035	266,578	.....	.....	579	6,591	1,046	58,300	1,715	.....	291	$15,000
Rolling Prairie	87,979	31,933	4,281	579	.....	.....	.....	1,984	.....	.....	491	[illegible]
Holmesville	85,576	19,028	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,100
Westville	66,613	11,676	2,300	2,984	8	10	.....	600	450	400	.....	[illegible]
Haskels	15,000	1,000	6,046	.....	.....	.....	.....	.....	.....	.....	.....	[illegible]
Roselle	24,000	5,000	6,000	.....	.....	.....	.....	.....	.....	.....	339	[illegible]
Michigan City	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100,000
Total	635,603	336,213	18,612	3,563	587	7,601	1,046	60,184	2,165	400	1,025	117,979
Average value through the year	62½	$1 50	33	60	$100	$50	$2 50	32	$6 50	$8 00	$16 00	
Total value	$397,189	$489,319	$6,143	$2,138	$58,700	$380,050	$2,615	$19,259	$12,990	$3,200	$16,400	$1,388,803
Total exports of the county	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$1,505 973

These figures give a value to our surplus, over its estimated value four years ago, of $1,105,970. Then we estimated its value at $400,000. Now we have $1,505,973. Then we had but one shipping point in the county. Now we have seven—six of which are at the very doors of the producers, and all prepared to take his produce to market as fast as he is ready to sell.

G. W. CRAWFORD, *President.*

LAGRANGE COUNTY.

[EXTRACT FROM REPORT OF 1855.]

The Lagrange County Agricultural Society held its third annual Fair on the 10th and 11th days of October, 1855. The number in attendance was large, and the interest manifested by our most enterprising citizens was highly commendable.

The officers elected for the present year are as follows, to-wit:

C. Cory, President; Nehemiah Coldren, Vice President; Robert McClaskey, Treasurer; Mills Averill, Secretary.

Since the commencement of our county fairs, our citizens have made increased and commendable efforts to improve in most particulars pertaining to good husbandry. An interest has evidently been excited by these annual exhibitions and gatherings which probably no other cause within our reach could have produced; and "the end is not yet."

Among the grains cultivated by us, a much larger proportion of corn is grown than in former years. One cause of this is, doubtless, a better market than formerly; and another no less efficient one is, that of all grain crops, this is the most certain, and hence on an average pays best. In favorable seasons, with reasonable cultivation, fifty bushels of shelled corn are usually looked for; while one hundred and upwards sometimes crown the more skillful labor of our hands.

Wheat, for several seasons past, has been extensively injured by insects, and the frosts of winter and spring. The Mediterranean wheat is thought, by many of our best farmers, to be the only kind which at present can be profitably cultivated.

Rye, as a winter grain, is quite extensively taking the place of wheat crops. A new variety has recently been introduced into our county by one of our enterprising citizens, A. P. Williams, known as the large white rye. This article has been grown in our region for two successive seasons with entire success. Owing to its superior quality for flour and its productiveness, it is likely to be continued in good demand in coming years.

Our citizens are also giving increased attention to the cultivation of clover and timothy. The yield of the meadow is equal, if not superior, in value per acre to any other crop on the farm. For the production of the seeds of these grasses, no good reason can be given why we may not be able to compete with our neighbors of any other county or State in the Union, and especially when the railroad now in process of construction to the gypsum beds at Grand Rapids, Michigan, shall have been completed. An average of five bushels of clover seed per acre is credibly reported to us as grown on a nine acre lot during the dry season of 1854. This was the second growth of that season on said lot. The first crop, which was cured for hay, averaged over two and a half tuns per acre. The change above alluded to in the management of our farms will doubtless greatly tend to enrich our soils, and hence to increase their capacities for all other crops

The funds of this Society have amounted during this year to about $130, which have been nearly all expended in preparing the fair grounds, paying premiums, &c. The amount to be yet drawn from the county Treasurer will about meet all the indebtedness of the Society.

CHRISTOPHER CORY, *President.*

MILLS AVERILL, *Secretary.*

MADISON COUNTY.

[EXTRACT FROM REPORT OF 1854.]

The Madison County Agricultural Society was organized April 22d, 1854, according to law, by adopting a constitution and by-laws, all of which have been duly registered in a book, together with all the preliminary and subsequent meetings.

Our board of officers consist of the following gentlemen:

Samuel Myers, President; Thos. Bell, Vice President; Joseph Dillon, Treasurer; J. R. Holston, Secretary.

At our April meeting, it was decided that the Society hold its

meetings quarterly, and the board to convene as often as the Society may in its judgment dictate. At the first meeting of the board of directors, which was held in Anderson, April 29th, it was decided that there should be three suitable persons in each township to solicit persons to become members, and report at next society meeting; and at the July meeting of the board of directors, it was decided that we hold our first county Fair at Anderson, September 28th and 29th. The Hon. John Davis donated to the Society three acres of land, for the purpose of holding our county Fairs for the term of three years, being the term of years fixed upon by the Society for holding its fairs at any one place.

Our Society now numbers 374 members, and the prospects are very flattering for a much larger number of members for next year. Our Fair ground was about a quarter of a mile west of town, near the state road, leading from Anderson to Noblesville, in a beautiful grove, fitted up and inclosed by our worthy president, Mr. Myers, with a plank fence, eight and a half feet high, inclosing a small brook, affording abundance of good stock water, it all being fitted up in ample style, with stalls, sheds, &c., for the accommodation of stock; also with a large and commodious shed, erected for the purpose of exhibiting the principal domestic manufactures, and all other fancy articles brought for exhibition. Our Fair came off on the 28th and 29th days of September. They were two of the finest and most pleasant days you commonly see in autumn. It seemed as if the whole masses of the people came from north to south, from east to west,—farmers, mechanics, merchants, lawyers, doctors, the clergy, &c., with all of our fine and beautiful "Misses" and "Mrs.," together with a fine band of music, gave great dignity to the occasion, and made the whole scene quite imposing. Ah, those were two days of which Madison county will long be proud. It was variously estimated that from 5,000 to 10,000 persons were in attendance on those days. It was literally a mass of living beings. We entered this work rather faltering, and with rather weak faith, thinking it would be a "small thing," and that we could not make it pay, &c., and a hundred other such predictions were uttered and heralded throughout our county; and it was a very common every day chat, that an Agricultural Society ought to be organized, and it would be a very good thing, &c., but then will it pay, was the great question to be solved? Yes, gentlemen, it did pay, and it

paid in the main, perhaps, an hundred fold. We were most happily disappointed; we more than realized our most sanguine expectations. This being our first annual county Fair, we had a great deal to learn; it could not be expected of us anything like perfection; however, our exhibition compared favorably with much older counties, which have had their two and three annual exhibitions. Men from other counties said our stock of horses were as good if not a little better than any they had seen in Wayne, Rush, or Henry counties, during their days of exhibition. Our cattle were chiefly of the native grade, crossed with the Durham stock, but of a very superior quality of the kind. Although there were not as many as we could have desired, yet what we had were fine.

The swine on exhibition were truly fine, and of a superior breed. Those exhibited which seemed to attract the most attention, were those which were owned by Messrs. Williamson & Son, and Messrs. Mowery, Huston & Ward. The sheep were few in number, and they of only a moderate quality. There is needed in this county a vast deal of improvement in reference to sheep raising and the growing of wool. There is no one business more neglected in this county, and yet there is none more lucrative, if attended to in the proper manner, than that of wool raising.

Our domestic manufactures, and a great variety of embroidering, and an almost endless variety of needle-work exhibited by our ladies of taste, would have made the eyes of any one water. Dr. J. L. Sorber's compound Entomological case was one of the greatest natural curiosities of the day—one of the freaks of nature; it was composed of all kinds of bugs, flies, worms, shells, &c., having been preserved in spirits of some kind. There were no wagons or carriages exhibited; but two plows; no cultivators; no threshing machines. There were some fine specimens of wheat, oats, barley, and corn exhibited. Messrs. Mattox & Stevenson exhibited the largest beets and sweet potatoes—they were truly fine and large. Such vegetables would do honor to any community.

We applied to and solicited Gov. Wright to address us on the occasion on the subject of agriculture, but being absent on business, we did not succeed in getting him, consequently, we had no address on the occasion, which was greatly needed. There seems just now a great disposition on the part of our farmers, mechanics, &c., to

try to excel in the various departments of their calling, and much may be looked for from our agricultural and mechanical interests of the county in a few years more. The principal and greatest improvement we need in our stock at this time is that of cattle and sheep; the next is, a better and more successful method of cultivating the soil. This is the great *desideratum* of the day, in which there is a great need of reform and improvement in this branch of business. Our farmers, generally, are draining their low lands, and thereby rendering them dry and capable of a high state of cultivation. The manner of ditching is to make it about as wide again at top as at the bottom, and then cover over the top with slabs or puncheons, and then cover this over with dirt, and by this means the water is all drained off and the land becomes dry. These are called "blind ditches." There has been a great deal of this kind of ditching done within the last two years in this and other counties. This county has almost every variety of both soil and timber, as much so, and perhaps more, than any other central county in the State. The former is capable of any amount of agricultural improvement; the latter, of the very best quality and in any amount. The southern, northern and western parts of the county are very rich and fertile, abounding with some fine farms and farm land. The center and eastern portion is not quite so rich or fertile, it being made up principally (especially along White river) of oak land, yet, upon the whole, it is thought better adapted to wheat raising than the other portions of the county. Our county is well supplied with mill streams and water privileges. Fall Creek in the south, is all that could be desired as to mill and machinery purposes. At Pendleton and Huntsville, there are three large flour mills within two miles of each other, which do a large amount of business; there are also two extensive woolen establishments which manufacture most any amount of woolen goods. Then there is White River, angling through the county, from northeast to southwest, affording a plentiful supply of water privileges, and all along it can be seen flour mills, saw mills, woolen manufactories, &c. There is Big Hill Creek which affords a plentiful supply of water for saw mills and carding machines for at least two-thirds of the year. Pipe Creek, in the northern part of the county, affords about as much water as the latter stream; it traverses through the richest portion of the county; on it there are as yet but few mills or machines. The above comprise the principal streams; yet there are several

smaller ones of less note, which might be greatly enlarged and improved by draining, which is being done as fast as possible.

Anderson, the seat of justice of the county, is located on the south bank, or rather south bend, of White River, is some 70 or 80 feet above low water mark, was laid out at quite an early day, is a high and dry location, and contains about 1200 inhabitants. It has greatly improved within a few years, being favored with the Indianapolis and Bellefontaine railroad, skirting it on the south; and by next summer, the Cincinnati, Logansport and Chicago railroad will be ready for the cars.

Then there will be the Anderson Hydraulic, which is expected to be completed in a few years, which is the completion of the central canal, and will be located on the north of town. It will have about 36 feet fall, affording great facilities for mills and machinery, with which to manufacture the greater portion of our surplus grain and wool.

We have Anderson in the center, Pendleton and Columbus in the south, Chesterfield in the east, Perkinsville in the west, Quincy in the north-west, and Alexandria in the north, all thriving towns.

This county was organized in 1823. It embraces about four hundred and fifty square miles. It has at this time, fourteen townships, and a population of about fifteen thousand.

According to the county auditor's report, made out up to the 1st of June last, there were assessed in this county 5,788 horses, mules and asses, valued at $238,486 00; of cattle 11,846, valued at $105,340 00; of sheep 14,547, valued $14,908 00; of swine 49,408, valued at $12,000 00; bushels of wheat 137,970, valued at $101,044 00; bushels of corn 1,097,618, valued at $226,037 00; bushels of rye 1,553, valued at $1,076 00; bushels of oats and barley 84,313, valued at $18,108 00; bushels of potatoes 19,080, valued at $4,180 00; bushels of grass seed 819, valued at $3,230 00; value of poultry $5,604 00; value of home-made manufactures $11,753 00; value of orchard products $9,932 00; tuns of hay, 3,468, valued at $14,338 00; pounds of wool 1,960, valued at $491 00; value of farming utensils $21,354 00; value of persional property $140,161 00; tuns of hemp 3, valued at $13 00; pounds

of tobacco 4,195, valued at $169 00; pounds of maple sugar 25,960, valued at $1,911 00.

The above table comprises the principal staples and their value, as audited by the county auditor, which is a fair comparison. Our county is emphatically an agricultural and manufacturing one.

Horses.—Horses are raised quite plentifully in this county, and those, too, of a good quality, commanding good prices. The farmers are generally turning their attention more of late to the improvement in horses, cattle, and hogs, than formerly.

Cattle.—There seems to be just now quite an animation among our farmers in reference to the improvement in the stock of cattle. Our county Fair produced quite a sensation on this subject, never heretofore known. There has been but little attention bestowed to this subject until recently. We hope it will not be long till we will catch up with some of our neighboring *Durham* counties.

Sheep.—This branch of business, although one among the most profitable, is greatly neglected, there being but little surplus, if rightly and equally distributed. It is to be hoped that our farmers will, for the future, pay more attention to the wool growing interest.

Hogs.—Hog raising is the principal staple. We have a very good breed of hogs, such, too, as are easily brought into market. Our county produces more of this staple, perhaps, than any other county in the State, with the same population. Our pork is taken away by railroad to Cleveland, Cincinnati, and Indianapolis, or driven to Cambridge City, and there slaughtered. Pork sold at home at $3,75 to $4,50 per hundred. The most common method of raising hogs is to have them pigged in the spring, fatten them at eighteen or twenty months old, and they will weigh from 300 to 400 pounds. Hogs, while on clover, should be salted twice a week with a little saltpeter and some sulphur put with the salt; also have plenty of running water for them to wallow in and drink. In fattening, they should have salt, saltpeter, and sulphur occasionally, and all the soap-suds and slop they can get.

Wheat.—By reference to the auditor's report we raised 137,870 bushels last year. At last year's prices it amounted to $101,044—

no little sum. This year, owing to the drouth, and fly in the wheat, our crop was not so large as last year; yet there is considerable of a surplus. With the increased price of wheat, the aggregate in dollars and cents, will make it equivalent to last year. It ranged this year from $1,25 to $1,80 per bushel. Wheat stands the highest in estimation of all the cereal or edible grains for the sustenance of man, and as an item of commerce; and it is a matter of regret and astonishment, that our farmers have not adopted more successful methods for its cultivation.

Corn.—This is the principal grain grown in our county, having raised, as may be seen by reference to the auditor's report, over one million bushels last year. This year, owing to the extreme drouth, there will not be so favorable a report; yet the deficit is not so large as was expected, from the fact that more corn was put in last spring than the previous year. The average yield last year was sixty bushels to the acre; this year not more than forty-five. The principal amount of corn raised in our county is consumed at home in fattening hogs; the surplus is shipped east. The best method of raising corn is (if sod or stubble) to plow or break up the ground in the fall or winter, harrow it in the spring, then run it out about four feet, and put in about four grains in each hill, so as to have about three stalks to the hill while growing. The yellow and white varieties are the most generally used. Last year it sold from 20 to 30 cents per bushel; this year, owing to the short crop, at 35 to 40 cents per bushel.

Oats and Barley.—We do not raise much barley. Oats is extensively cultivated in this county and meets with a ready sale at 25 to 30 cents per bushel. We sow about two bushels to the acre, and with a good season, the yield is about 50 bushels per acre.

Grass.—We only cultivate what grass is necessary for home consumption. Timothy and clover are the principal grasses cultivated. They are great fertilizers of the soil.

Fruit.—Our orchard products are not by any means what they ought to be. There is not enough attention paid to fruit raising, owing to the uncertainty in this latitude. Our winter and spring is so varied, that it is not every year we can have fruit, especially peaches; but our farmers are paying some attention to the selecting of approved and popular fruits.

Dairy.—Our dairy products are but little above home consumption, and is by no means what it ought to be, nor what it will be eventually.

Potatoes.—Potatoes are cultivated for home consumption, although we raise considerable for exportation. This year being very dry, our potato crop was light, scarcely enough for next year's seed and for domestic consumption. Potatoes are selling at from 75 cents to $1,00 per bushel. The varieties used are the "long red," the "meshanocs," and "big blues."

Flax and Hemp are not much cultivated as yet. Flax culture is very profitable; it is the best crop to be followed with wheat. It is to be regretted that our farmers have not paid more attention to the culture of flax, when the seed commands so high a price. Flax seed is worth $1,50 per bushel; then there is the straw and fiber or lint, which are nearly equal to the seed, besides it is the best land on which we can seed down with wheat. Wheat is not very apt to take the rust when sown on flax ground, nor is wheat so apt to be affected with disease of any kind. There are several more items connected with this report, which would be of interest to the agricultural interests of the State, upon which I have no data to base an accurate and concise report. The agricultural and mechanical interests have received quite an impetus from the demonstrations of our late county Fair. It has aroused a latent energy in the bosom of every farmer and mechanic, which heretofore was slumbering in the labyrinths of night. And we hope the day is near at hand, when the State of Indiana shall have an agricultural college in which our young men may graduate in the science of agriculture, etc., in which they may be made fully acquainted with all the proper chemical analysis of the soil, and with the various combinations of the elements of the germinating properties of vegetation, as combined with the various qualities of soil, as those who are with the common process of deterioration. Then, and not till then, can we expect to see the agricultural, horticultural, and mechanical interests elevated to that degree that it is its province to aspire to. Then let every one of us study, search, labor and toil with unyielding assiduity for its final consummation.

J. R. HOLSTON, *Secretary.*

[EXTRACT FROM REPORT OF 1855.]

The Madison County Agricultural Society was organized, (as may be seen by my first annual report) in Anderson, April 22d, 1854, and was reorganized, by the election of the following board of officers, April 7th, 1855:

President, E. M. Jackson; Vice President, Isaac Pittsford; Secretary, J. Reed Holston; Treasurer, Joseph Dillon.

Our second annual Fair was held in Anderson on the 4th and 5th of October, 1855. At a meeting of the board of directors it was thought best to enlarge the fair grounds, to make sundry additional improvements, and also to erect an additional shed, &c.; which was all done up in fine taste and order by our worthy and enterprising citizen, Samuel Myers. But owing to the great amount of sickness throughout our county, and the incessant rains previous to the days of the Fair, and the threatening appearance of rain the first day, and the incessant torrents of rain the second day, together with almost impassable roads and high waters—all seemed combined and arrayed against the desired wishes of our Society, and which militated very much against the wishes of our farmers and mechanics, insomuch that our Fair was rather meagerly attended.

There was not that amount brought in for exhibition that was anticipated, but what was exhibited was not easily surpassed by any in the State, especially the horses and vegetables.

Our cattle were of much better stock, and more of them than were exhibited last year; the hogs were far superior, and the sheep about the same. But few jacks and mules, and but few poultry on exhibition. In the mechanical department there was but a small display, but good.

We had anticipated a splendid industrial exhibition, but were defeated, as the above shows. What important lessons may we learn from the present as well as from the past.

> "Chose now, and now refused, unsatisfied;
> Pleased, then displeased, and hesitating still."

To fully appreciate the improvements in agricultural and mechan-

ical skill, it is only necessary to refer back to other days—say some twenty or twenty-five years. Then the implements used in husbandry by our farmers and mechanics were in keeping with the old barshare and pod-anger system. But since those darker days have passed away, there has been a new sun-light lit up in the science of agriculture and mechanics, which reflects honor upon it. Then, in those days the ground was only plowed or scratched over some three or four inches deep, and then tended in the most slovenly manner. The wheat was put in in the poorest manner, and but a small quantity of seed used, and consequently the average yield was only from six to eight bushels per acre, which was cut with a sickle, and threshed out with the old flail or "treading-out" system. Grass was then cut down on the first of the week, and was thought not to be sufficiently cured and ready for stacking or mowing away until the last of the week. Now, many of our farmers plow their ground from six to ten inches deep, and, with the aid of subsoiling, it is even plowed twelve or fourteen inches deep. Our wheat is cut and threshed out by machinery, which is the sure development of the research of agricultural science combined with mechanical skill. Our farmers are endeavoring with all possible haste to improve their farms and lands; getting a better supply of horses, a better stock of cattle, hogs, sheep, &c.

This is quite a hog raising county. I have no certain data upon which to base any certain and definite calculation of the number of hogs raised and fattened this year. Pork, wheat, flour, and corn are the chief staples of export from our county.

There is a great deal of ditching being done, especially on all wet lands, which has proved very beneficial and has more than remunerated the farmer for expenses incurred, in drying his wet land and rendering it capable of cultivation. This is a great desideratum in the improvement of wet lands. I believe the most common method of draining lands is to cut a ditch twenty or twenty-four inches deep, three feet wide at the top and two feet at bottom, and then to cover it over with timber, either split or round, and then cover that with earth deep enough to cultivate over it.

There is quite a decided improvement in the treatment of our soil. Sod and stubble lands are turned under either late in the fall or early in the spring, then lay till about the last of April, and then

harrowed well with a two-horse harrow. It is then made ready for planting, which is from the 1st to the 25th of May. Wheat lands are generally fallow lands, which yield from twenty-five to thirty-five bushels per acre. Corn this year averaged, wet as it was, from fifty to sixty bushels per acre. Wheat and oats were greatly injured owing to the great amount of rain during harvest. Corn is now (December 25) selling at the railroad at 40 cents, wheat at $1.50, oats at 30 cents, and potatoes at 30 to 35 cents per bushel.

Pork was high, although most of our farmers engaged their pork last summer, which was a bad arrangement, at from $3.40 to $3.75 per hundred, and some few at $4.00 to $4.50. This year I think will teach our farmers an important lesson—not to engage their hogs till fatted. This singular method, adopted by some of our farmers, of contracting their pork so early, is very detrimental to the farming interest, as they are greatly the losers in the end. It was especially the case this year.

We have now in successful operation, running to our county seat, Anderson, two railroads—one from Indianapolis to Cleveland, and the other from Logansport to Cincinnati; so we have quite an easy and convenient facility for exportation and importation to and from our county.

Our entire county is greatly improving in every particular, with the exception of the educational interest, which is in rather a dilapidated condition for the want of a more efficient and practical system of education, and the necessary amount of available means; hence the inefficiency of our present school system to meet the necessary demands. When we shall be permitted again to report to your honorable body, we hope to be fully prepared to make a more able report.

On the second day of our Fair the Hon. T. N. Stillwell was invited to address the Society, which he did in the Methodist Episcopal Church, to the satisfaction of all present. A copy of the address I transmit to you for publication in connection with this report.

All of which is very respectfully submitted,

J. R. HOLSTON, *Secretary.*

MARION COUNTY.

[EXTRACT FROM REPORT OF 1854.]

The Society has three hundred and sixty-six members. It was expected that a much larger portion of the farmers and mechanics of the county would have united themselves with the Society, had it not been for the excessive drouth of the last summer, which affected the farmers in their crops to such a degree that it appears in some measure to have extended to the farmers themselves. Many of our first farmers appear to be wholly engaged in getting good prices for their produce, but seem to have little desire to attend our agricultural meetings, or lend a helping hand to improvements in agriculture. This will be corroborated by the fact that a premium list of some eight hundred and ninety dollars was made out by the executive committee, and that the amount of the premiums actually awarded to the different competitors is less than five hundred and fifty dollars.

Farms and Improvements.—The general aspect of the improvements in our county is cheering, and every where visible in the increased cultivation of farms in many parts of the county, showing that the earnings of the people are being expended at home, instead of being invested in new tracts to lie unproductive for years to come, thereby rendering their families more comfortable after having endured years of toil in opening their present homes from the wilderness.

Horses, Mules, Cattle, and Sheep.—But little improvement is discernable in this class, although a few are laudably engaged in good, permanent, and marked improvement of the various breeds; but the generality of farmers continue in their old-fashioned manner, whether it be for the better or not.

Swine.—This prominent and main staple of the county, instead of being improved in the breeding during the past season, has been neglected, and on account of the extreme drouth many stock hogs were sold and driven north, out of the county, where the corn crop escaped the drouth.

Wheat.—The yield of wheat this year has been various, both in

quantity and quality; varying from eight to thirty bushels per acre, and not averaging more than twelve or fourteen to the acre. The causes assigned are various, but the one which is probably nearest right, is the extreme heat at the time of ripening, shrinking the kernel. Varieties—blue stem, Mediterranean, and Alabama. The best is Mediterranean.

Corn.—The corn for the past year was much injured by the drouth, and there is probably not more than one half the ordinary yield. Price from 40 to 50 cents per bushel. There was more than usual planted last spring. It goes south to Kentucky for a market the present year.

Barley, Oats, and Hay were good, although there was but little barley sown. Price of barley, $1.00; oats, 33 to 40 cents; hay, from $10.00 to $14.00 per tun. Reliance as to the amount raised cannot be placed upon our own opinions merely, but we shall soon have a more sure data from the assessors' lists, if the law is properly carried out by the assessors.

Potatoes.—Both Irish and sweet potatoes felt most severely the effects of the past uncommon dry season.

Buckwheat.—None raised.

Turnips.—The late rains brought them forward and produced a fair yield.

Farm Implements.—Improved farm implements are more called for, and the buffing, rusty, rough mould-board is giving way to the best polished cast steel, making the draught for the team much easier, as well as lending some aid to the holder, and enabling him to do his work not only better but more of it. Several enterprising mechanical establishments have been located in this county during the past year, at which implements of husbandry are made of which the manufacturer may justly be proud.

Fruits.—Much attention has been given during the past year to the introduction and cultivation of good qualities of all kinds of fruit, and thousands of trees are now being brought from the eastern nurseries in addition to those raised by our own nurserymen and sold within the county. The late spring frosts cut off much of

those fruits whose blossoms were opened at that time, making a scarcity of many varieties, except grapes, which were in abundance.

Dairy Products.—The different branches of the dairy have not received that special attention which their importance demands. Good butter packed in May or June for consumption during the next winter is valued by but few persons here, and as a consequence the market is sometimes bare of good butter. The price varies from 20 to 25 cents per pound, though some times it falls to 15 cents. So few make cheese at all, that indifferent cheese brought (and to our shame be it said) from Ohio retails at from 12 to 15 cents per pound. Accompanying this report is the description of the process of making, on the first award, of butter made in June last, and also for cheese-making.

Domestic Manufactures.—Much of the domestic fabrication in this county is worthy of the praise bestowed upon the different articles exhibited, and quite a brisk competition existed at our last Fair, and the premiums offered were competed for and mostly if not wholly taken.

Flax and its Culture.—Much as has been said and written on this subject, we have no information of any having been extensively raised except for the seed, and that cut by reaping machines, without endeavoring in any manner to save the lint, and until labor is more plenty and the price of the lint higher, it will not more than pay expense.

There were 411 entries made at our county Fair, and quite an increase on horses, cattle, domestic manufactures, and garden vegetables.

This report comes forward to the 24th of November, being the annual meeting of the Society for the election of officers, at which time the following officers were chosen for the ensuing year:

President, Fielding Beeler; Vice President, Evans Bristow; Secretary, John S. Tarkington; Treasurer, Powell Howland.

An address was delivered at our county Fair, to a large audience, by the Hon. Samuel E. Perkins.

POWELL HOWLAND, *President.*

JOHN S. TARKINGTON, *Secretary.*

STATEMENT CONCERNING PREMIUM BUTTER.

The butter made by me and presented to the committee on dairy products, was made in the latter part of May and first of June. The milk-pails, strainers, pans, churn, butter-bowl, ladle, and the jar in which it was packed were all well washed and carefully scalded with boiling water previous to use, to free them from all acidity or rancidity. Care was observed that no pail, pan or strainer was wet when used, as the cream or milk sours sooner if done. The milk was set in a cool, well ventilated cellar, and no ice or spring water used to cool the milk. After the butter was churned, the milk was well worked out, and, as near as guess-work could come, an ounce of Liverpool blown salt was added to each pound of butter, and then worked over twice more and packed in the jar, which was covered with a cloth, on the top of which was placed a layer of salt and moistened sufficient to make a brine to exclude the air, and then placed on the pavement of the cellar bottom. The milk of two cows only was used, and churned with the common upright dasher churn.

MAHALA HOWLAND.

STATEMENT CONCERNING PREMIUM CHEESE.

My method of making cheese is as follows: The night's milk is strained into a tub, dipped out into pans, and set in a cool place over night. In the morning, the morning's milk is strained into the tub with the night's milk; the heat is then raised to eighty-eight degrees, and then sufficient rennet is added to produce perfect coagulation in from thirty to forty minutes. When the curd is completely formed, cut it across each way with a broad wooden knife, made for the purpose; let it stand half an hour, when I gently break it with the hand, and commence raising the heat until it is heated to one hundred degrees, breaking it and keeping it stirred moderately; then I commence dipping off the whey, and cooling the curd carefully, not stirring it so fast as to start the white whey. When the whey is all drained off, to thirty pounds of curd I put one pound of lake salt. It is then put in press two days,

turned twice, into a dry clean cloth; it is then taken out and painted with annatto and put on shelves in an open room to dry.

MRS. HIRAM BACON.

Washington Township, Marion County, Indiana.

N. B. Sage cheese manufactured in the same way, except adding the sage.

MIAMI COUNTY.

[EXTRACT FROM REPORT OF 1854.]

The second annual Fair of the Society was held on the 12th and 13th days of October, 1854. The display of agricultural and other products was large, and altogether creditable to the industry, skill, and enterprise of the citizens of the county.

ROBERT MILLER, *President.*

JOHN A. GRAHAM, *Secretary.*

MORGAN COUNTY.

[EXTRACT FROM REPORT OF 1854.]

At a meeting of the Society, held August 21, 1854, the following persons were elected officers:

William B. Thompson, President; Uriah Ballard, Vice President; Addison Hadley, Treasurer; John S. Hubbard, Secretary.

The fourth annual Fair of the Society was held at Monrovia, on the 12th, 13th, and 14th days of October last. The weather was quite unfavorable for our Fair—raining, with but little intermission, the first and second days. On the third day it cleared up, but was still unpleasant under foot. In despite of the inclemency of the weather, a large number of persons were in attendance, both

from this and the adjoining counties. Four hundred and seventy-five entries were made as competitors for premiums.

The exhibition of horses and cattle was unusually good. Sheep and swine were not so well represented. Several coops of very superior Shanghai and Cochin China fowls. The large display of grain and fruits could not easily be excelled. The specimens of the mechanic arts did credit to the skill of our mechanics, though but few, comparatively, were exhibited to what might have been presented.

The plowing match, by boys under 18 years of age, was good. Four entered the field. The contest was so near equal that the committee, after awarding the first and second premiums, recommended that the other two be also suitably rewarded.

The ladies, in their department of domestic manufactured articles, deserve especial notice. Their articles were numerous and tasteful, giving a fine illustration of their skill and industry.

The various committees were faithful and impartial, in their awards, to the respective classes of articles submitted for their inspection and decision. The number of premiums awarded was 159, and the amount of awards $272.75. Taken all together, the Fair was considered quite creditable to our county, and showed an improvement on any former exhibition. Balance in the treasury, after paying awards and other incidental expenses, about fifty dollars.

Morgan being an interior county, our surplus products find a market through various channels; hence we have not the means at hand whereby to arrive at a correct estimate of our exports.

The corn crop the past season, in consequence of the very severe drouth, was cut short at least one half. The wheat crop also light. being winter killed, and also injured by fly. Oats and grass gen erally good.

The following is a list of some of the leading articles, as returned by the township assessors for 1854:

Products, &c.	Number.	Value.
Horses, Mules and Asses	5,639	$259,202
Cattle	12,569	118,937
Sheep	17,229	16,479
Swine	66,768	179,442
Bushels of wheat	87,118	65,721
Bushels of corn	1,372,825	305,678
Bushels of rye	623	320
Bushels of oats and barley	97,114	22,921
Bushels of potatoes	12,050	3,030
Tuns of hay	3,238	13,339
Orchard products	.....	13,050
Real estate	.....	2,151,395
Town lots	.....	201,860
Personal property	.....	1,537,600
Total value of taxable property	.....	3,907,230

There are 2,173 polls in this county.

All of which is respectfully submitted.

WM. B. THOMPSON, *President.*

JOHN S. HUBBARD, *Secretary.*

OHIO AND SWITZERLAND COUNTIES.

[EXTRACT FROM REPORT OF 1854.]

The third annual fair of the Society was held at Vevay, on the 14th, 15th, and 16th days of September, 1854; and, notwithstanding the unfavorable season for a good exhibition of stock and agricultural products, on account of the drouth, it far exceeded the expectations of the officers, members, and friends of the Society.

The specimens of horses, jacks, jennies, mules, cattle, sheep, and poultry exhibited, were such as to do honor to the two counties.

The specimens of domestic manufactures were fine, and showed a commendable rivalry.

The specimens of wagons, plows, steamboat yawl, flat-boat skiffs, and other mechanical productions, were of superior finish, and clearly showed that they were the products of master workmen.

Fine specimens of apples, peaches, and grapes were exhibited.

The whole affair went off in such a manner as indicated that a deep interest was felt for the welfare of the Society by the citizens, generally, of the two counties. The farmer, the mechanic, the doctor, the lawyer, the merchant, and the trader, appeared to unite in one common effort to push forward this great artery of the nation's greatness and prosperity.

Our Society has been in existence about three years, and its prospects for usefulness are good; many of the members manifesting a commendable interest in its prosperity and usefulness.

The principal field crops raised in the district are corn, wheat, oats, rye, barley, grass and potatoes. Our soil and climate are well adapted to the above named crops, especially grass, corn, and potatoes.

According to the statistical table of the seventh census, Switzerland county has 1,397 farms, 58,586 acres of improved land and 75,341 acres unimproved, 1,917 horses, 2,175 milch cows, 423 work oxen, 2,507 other cattle, 10,001 sheep, and 14,923 swine.

The products of the farms of Switzerland county, in 1850, were as follows: 77,182 bushels wheat, 708 bushels rye, 384,364 bushels corn, 44,684 bushels oats, 22,865 pounds wool, 141,730 bushels Irish potatoes, 672 bushels barley, 177,965 pounds butter, 17,745 pounds cheese, and 9,763 tuns of hay.

Ohio county has 453 farms, 24,150 acres improved land, 22,222 unimproved, 1,256 horses, 1,190 milch cows, 117 work oxen, 969 other cattle, 3,171 sheep, and 8,566 swine. In 1850 these farms produced 45,498 bushels wheat, 352 bushels rye, 258,455 bushels corn, 9,618 bushels Irish potatoes, 1,057 bushels barley, 4,102 bushels sweet potatoes, 60,386 pounds butter, 750 pounds cheese, and 1,985 tuns of hay.

On account of the drouth the crops of corn and potatoes, the past season, were unusually light. The crops of wheat, oats, and grass were very good. The price of wheat has been from $1.20 to $1.45 per bushel; oats, 40 to 45 cents, and hay from $9 to $12 per tun.

Our farmers, for the past few years, have been realizing good prices for all the products of their farms, and are in the way to wealth and prosperity.

The officers of the Society are, David Henry, President; David G. Rabb, Vice President; Jacob R. Harris, Treasurer; Perret Dufour, Secretary.

I regret exceedingly that we cannot make a more full and satisfactory report.

All of which is respectfully submitted.

PERRET DUFOUR, *Secretary.*

Vevay, December 27, 1854.

[EXTRACT FROM REPORT OF 1855.]

The fourth annual Fair of the Ohio and Switzerland Counties' Agricultural Society was held at Vevay, on the 19th, 20th, and 21st days of September, 1855.

The exhibition of horses, jacks, jennies, mules, cattle, and also of the several mechanical and agricultural productions, were of such quality as exceeded the expectations of the board of directors.

In our present report we are not prepared to give a statement of the quantity of the different staple articles which are sent to find a market in the south, or manufactured in our district during the year 1855. We received during the Fair, in money, by donation and for membership, the sum of four hundred dollars, which was all paid out for a large canvas tent and in premiums, leaving our treasury empty.

The Society have to acknowledge the receipt of a variety of seed from the patent office at Washington, which have been distributed among the farmers of the district. We have also received several copies of the report of the Commissioner of Patents (agricultural), which are to be disposed of by the board of directors.

We are of the opinion that the territory embraced within the bounds of our Society will compare very favorably with other portions of our State, for its fertility and for its adaptation to the raising of wheat, corn, potatoes, and grains of all sorts, together with hay, which may be said to be our great staples; and we hope it will not be considered as boasting too much when we say that the district *carries the horns* in the raising of corn, as a citizen of Switzerland county, and Vice President of our Society, received the first premium for the best ten acres of corn.

We feel justified in saying that our Society is in a very prosperous condition. Our best and most enterprising farmers, mechanics, and other citizens, are beginning to take more interest in the prosperity of the Society, and appear to be more willing to give their support and countenance to it than formerly.

We expect to be able by the next annual meeting to give a better report from Ohio and Switzerland counties.

D. G. RABB, *President.*

PERRET DUFOUR, *Secretary.*

OWEN COUNTY.

[EXTRACT FROM REPORT OF 1855.]

The Owen County Agricultural Society has continued its operations during the year just closing with the following officers, viz:

William M. Franklin, President; Joseph G. Stevenson, Vice President; Isaac E. Johnson, Secretary; James W. Dobson, Treasurer.

The accompanying printed list of premiums was offered for our second annual Fair, which was held on the fourth and fifth days of October, 1855, and was not very numerously attended on account of the bad state of the weather. Yet we had a very good display of stock, &c. Our premiums were agricultural books.

An abstract of the treasurer's report accompanies this report, and will show a very good condition of our financial affairs. We have about one hundred and twenty members, and there is considerable feeling manifested on the part of the members to present a good report at our next Fair.

The peculiar location of our county in the White River valley, with its almost inexhaustible resources of timber, stone, iron ore, stone coal, rich alluvial bottoms and unusually productive uplands, destines our county, when its agricultural capabilities have been properly developed, to be second to none in the State in proportion to the extent of its area.

Our farmers, during the last year, have manifested considerable interest in the improvement of their stock, especially cattle and hogs, having imported a number of very fine specimens from other States; and by the continued exertions of our Society, our county fairs will become more attractive and produce more beneficial results to our citizens.

W. M. FRANKLIN, *President.*

ISAAC E. JOHNSON, *Secretary.*

PORTER COUNTY.

[EXTRACT FROM REPORT OF 1854.]

At the annual meeting of the Porter County Agricultural Society, held at Valparaiso, on the Saturday next preceding the first Monday of September, 1854, the following persons were elected officers of the Society for the ensuing year:

G. W. Turner, President; A. Freeman, Vice President; William Wilson, Secretary; S. W. Smith, Treasurer; O. Dunham, Librarian.

The fourth annual Fair of the Porter County Agricultural Society was held at Valparaiso on the 11th and 12th days of October, 1854. The weather being unpropitious, and the excitement of the October election not having passed away, the attendance from the country was small.

The display of stock was not equal to that of last year, except horses. We would prominently mention the draught stallions exhibited by George Allen and Hazzard Sheffield; the carriage stallion, by William Clark; the matched horses, by Dr. Cass, and the brood mares, by Messrs. Cass, Paine, and Sampson.

Cattle.—There were some fine specimens exhibited—we think an improvement as to quality on former exhibitions. Ours is decidedly a stock growing county; and if some enterprising stock grower of this or some other State would introduce some of the best qualities of stock, they would be amply repaid. We know of no portion of the western country that offers greater encouragement to the cattle grower than Porter county. There were several very fine bulls on exhibition. The best were offered by Hazzard Sheffield and Samuel Campbell. The Durham heifer exhibited by Joel C. Paine was a fine specimen.

Sheep.—Of our sheep we may justly feel a good degree of pride. Those of Dr. L. A. Cass, exhibited at our Fair, both old and young, will compare favorably with any in the West.

There were but few farm productions on exhibition, although our farm crops have been full as good, generally, as those of any former year. There was no wheat exhibited. The best specimens of corn, beans, and potatoes, were exhibited by Judge Woodruff, Judge Johnson, and H. A. & J. C. Paine.

Fruit.—We have had a poor fruit year, and consequently it was not exhibited in as large a variety or as fine quality as last year. There were, however, some very fine specimens exhibited by H. E. Woodruff, D. Hughart, and others. The best specimen of grapes was exhibited by Mrs. Paine.

Manufactures, Fancy and Domestic Articles.—The cultivator and seed drill combined, on exhibition, by F. Vandoren, was a good article as to workmanship and promise of utility. Many other

articles of domestic manufacture were exhibited which reflected credit on those who prepared them. The ladies were on hand with their domestic manufactures. The bed quilts exhibited by Mrs. A. Freeman, Mrs. Milan Cornell, Mrs. G. W. Turner, and the Methodist Sewing Society, were beautiful specimens of female ingenuity. Also, the silk bonnets exhibited by Mrs. R. M. Gilbreath and Mrs. C. C. Stevenson, reflected great credit on the mechanism and taste of those ladies.

The vegetable kingdom was again very fully represented. Pumpkins, squashes, carrots, onions, beets, turnips, tomatoes, cabbage, and sweet potatoes, were marshalled in strong array, in the vegetable army, enough to satisfy any one that Porter is unsurpassed in soil and climate for the growing of the necessaries of life.

Our dairy products form quite an item in Porter county husbandry. Butter, cheese, and honey were exhibited of the finest quality.

G. W. TURNER, *President.*

WM. WILSON, *Secretary.*

RANDOLPH COUNTY.

[EXTRACT FROM REPORT OF 1854.]

The following persons were elected officers of the Society for the year 1854:

Thomas W. Reece, President; John W. Cottom, Secretary; Geo. W. Monks, Treasurer.

The Society have leased a piece of ground for the term of ten years, which they have inclosed with a permanent oak plank fence, which will reduce the expense of the Society and enable them to pay larger premiums in the future.

Our annual Fair was held on the 12th, 13th, and 14th days of October, A. D. 1854, which days proved to be *unfair*—for it rained

the two first days nearly all the time. The attendance was not as general as it would have been under more favorable circumstances.

Wheat.—This crop was a very light one this season.

Corn.—This crop was not as good as usual, owing to the dryness of the season.

The display of cattle and horses exceeded that of any previous exhibition, both as to quality and number.

The hogs on exhibition were the finest by far ever before exhibited in this county, and could not be surpassed in quality in the State. This may seem like boasting, but the *pigs* are still on hand and will show for themselves.

The display of apples was very fine. Randolph county has some very excellent orchards.

The mechanics of this county fail to exhibit specimens of their workmanship, and do not take as much interest in our Society as they should. It is to be hoped they will do better in future.

Daniel Hill had on exhibition his compound harrow and roller, which this Society think is quite a labor-saving concern to the farmer; it sows any kind of grain, either broadcast or in drills, harrows and rolls it at the same time.

The *fairest* part of the Fair, the ladies, were also present, with their beautiful quilts, coverlets, carpets, and bonnets, and carried home with them a liberal share of the premiums.

Messrs. Carter & Bros. had on exhibition buggies, which, for beauty and neatness of workmanship, could not easily be excelled.

THOMAS W. REECE, *President.*

JOHN W. COTTOM, *Secretary.*

[EXTRACT FROM REPORT OF 1855.]

The officers elected for 1856, are, President, Nathaniel Kemp; Vice President, A. Stone; Secretary, J. W. Cottom; Treasurer, G. W. Monks.

About five acres of ground has been leased for ten years, and is neatly enclosed with a board fence about eight feet high. Halls, sheds, stalls, and pens, have all been erected for the accommodation of exhibitors in every department.

Rich agricultural products in abundance loaded the tables, and highly interested those who attended. Although the successive rains prevailed in this part of the State, the wheat, oats, and hay, being injured, the crops generally will be an average one.

Many farms which a few years past presented a dreary and forbidding aspect, are now presenting a cheerful and inviting appearance. Low lands heretofore considered useless and unproductive, are being drained and cultivated with complete success. Swamp lands that presented to the eye a lonely and forbidding appearance, have been drained successfully, and instead of containing from one to ten feet of water, the husbandman receives from fifty to one hundred bushels per acre. Much taste and improvement is also exhibited in ornamenting homesteads, with a view to convenience, utility, and comfort, surrounding them with ornamental trees, evergreens, and shrubs, giving them an attractive and beautiful appearance.

The Fair was held on the 27th, 28th, and 29th days of September, and was largely attended by an enthusiastic crowd, which surpassed the most sanguine expectation of any. An increasing interest is manifested in our farmers and mechanics through each successive year, in exhibiting their several productions. There was exhibited at the Fair a fine variety of thorough, full, and native grade stock, and a great amount of agricultural productions, while the mechanical departments were well represented.

MARTIN A. REEDER, *President.*

J. W. COTTOM, *Secretary.*

RIPLEY COUNTY.

[EXTRACT FROM REPORT OF 1854.]

It is with pleasure we herewith transmit the proceedings of the first annual Fair, held at Versailles, on the 28th and 29th days of September, 1854. It surpassed and exceeded the most sanguine expectations of the members and friends interested in its prosperity.

The annual meeting of the Society was held on the 29th of July last, this being, according to her constitution, the designated time for selecting a board of directors.

The officers elected for the present year are as follows:

William T. S. Cornett, President; George Shook, Vice President; John Henry, Secretary; Horace A. Mayhew, Treasurer.

Some two acres were enclosed with a good plank fence, nearly eight feet high, with a sufficiency of stalls and pens for the quadrupids. Inside of the gate articles of refreshment were sold; by this means, a great many visitors were accommodated on reasonable terms. No spirituous liquor was allowed on the ground, therefore peace and harmony triumphantly prevailed.

In the ladies' department, which was tastefully fitted up, there we beheld the handiwork of genius, domestic manufactures skillfully arranged, beautiful fancy quilts, single and double coverlets, counterpanes, a splendid variety of ornamental and useful needlework, home-made jeans, blankets, carpets, embroidery, &c. These articles being good, generally took premiums; therefore, much credit is due to the mothers and daughters of old Ripley.

The entries by members for competition amounted to 112; total number of premiums awarded 116, the discretionary premiums being few in number. The rewards paid in cash amounted to $151 50, 47 diplomas, and 7 agricultural books. Total expenses of the Fair, $108 70; apparent balance in the treasury, $41 28.

The unparalleled drouth of four month's excessive heat from a scorching sun, prevented in a good degree, a luxuriant crop of

vegetables; notwithstanding the great failure, samples were forwarded to the exhibition table. The creator and governor of the universe, for some good and wise purpose, withholds at times his blessings from the inhabitants of this world, which if duly appreciated by the children of men, may prove a special benefit to many of them, considering that every divine favor comes from Almighty God, and should always be received with thankfulness.

The county embraces within its limits almost every variety of soil, the timber plentiful and of a durable quality; springs of water excellent. Peculiar advantages are derived from the creeks Laughery, Hogan, Graham, and Otter, for grist and saw mills. An additional supply of steam flouring mills have been recently built, in which large quantities of wheat is now manufactured at home, and the surplus carried to the adjacent towns on the Ohio river. Limestone quarries are found in every neighborhood—the day is not far distant when hedges and stone wall fences will be seen in many districts. The seed of the Maclura or Osage Orange is brought to this county, and sown by a few of the citizens; in three or four years, durable and substantial fences are raised from the seed; thus, we see, by timely substituting an excellent article, that is not only good, but congenial with our climate, a thick and beautiful hedge will succeed the common rail fence, thereby considerable timber will be saved for the rising generation.

Some 75 horses, including sucking colts, of a superior quality, were entered for exhibition. Premiums were given to twenty-eight of them. The immense crowd of spectators beheld with pleasure the spirit of fair and honorable rivalry. For additional proof, see the proceedings of the Indiana State Fair, recently held at the city of Madison. The judges awarded to Messrs. Glaze, Overturf, and Shields, a proportionable part of the State premiums for their fine blooded horses. So much, in part, for the agricultural zeal and indefatigable perseverance of Ripley county.

Forty-nine head of cattle, of different ages, were presented; twenty-two of them drew prizes. This shows plainly, and beyond doubt, the profit arising from good and well fed stock.

The majestic appearance of the jacks and mules, with all their good qualities, entitled every one of them to premiums. Many of

the old farmers, who preferred staying at home with their stock, hearing the good success of their neighbors at the Fair, resolved, hereafter, to do better, to have their stock annually taken to the exhibition ground, and get their proportionable part of the agricultural fund generally given on all articles of merit.

The sheep and hogs were not out in great numbers; the quality was commendable, and compensated the owners well for their good keeping, and the trouble of taking them to the Fair.

In rendering justice to every man, the owners of superior poultry should never be forgotten, taking into consideration the large size and good qualities of the Shanghais and Polands. This was considered a very material acquisition to the show.

It is well known that there are as good mechanical workmen in this county as can be found in the State; but it is to be regretted that very few of them exhibited specimens of their workmanship. The articles presented were of the first class, firm and excellent in every part.

The crops of wheat, oats, and corn, were duly represented; thus the tillers of the soil admirably performed their duty, and received their rewards, with a full recompense for extra labor. Practical farmers, being aware of this, constantly keep up the line of march, having learned from past experience, that prosperity depends, in a good degree, on the economy pursued, willing at all times to change for the better, and whenever necessary, to substitute improved agricultural implements.

The list of premiums, recently awarded, have been published in the "Literary Messenger," at Versailles, therefore we deem it inexpedient to forward a copy and have the same republished.

The Hon. John Dumont, of Vevay, was prevented by sickness in his family, from delivering an address at the Fair. The unavoidable disappointment was a source of regret to many of his old friends.

The committee appointed to view farms, awarded the first premium to James C. Alden for the best managed and cultivated farm; second premium to Michael Fall; third premium to John Henry.

The Ripley County Agricultural Society is only about seventeen months old; yet, young as she is, she numbers nearly two hundred members. Her position is onward and upward, thus keeping up with the times. Her condition is improved, and her revenue increased.

All of which is respectfully submitted.

JOHN HENRY, *Secretary.*

[EXTRACT FROM REPORT OF 1855.]

Considering it the incumbent duty of the President and Secretary of the Ripley County Agricultural Society to make the following annual report in due time to the parent institution:

The second annual county Fair was held at Versailles on the 19th, 20th, and 21st days of September. Notwithstanding the inclemency of the weather on the first and last day, there was a "respectable turn out" from the different townships. This shows that a growing interest is not only felt but realized in every neighborhood.

According to request, the Hon. S. S. Harding, of Milan, in said county of Ripley, delivered an address on the second day of the Fair.

A few months ago the Society leased, for a term of six years, four and a half acres for a fair ground, situated in the vicinity of Versailles, fenced the same with a close plank fence, eight feet high, dug a well, and erected a variety of necessary buildings common to fair grounds. On the south-east said lot is beautifully decorated with many beautiful shade trees, which renders considerable comfort to the quadrupeds on a sultry day, and a sufficiency of water for man and beast. There was another peculiar benefit accruing to the remotest townships, viz: the fair ground being located in the interior or center of the county—thus the majority of our fellow-citizens nearly share alike in equi-distant traveling. The total expenses amounted to four hundred and fifty-nine dollars and fifteen cents.

The board, knowing the necessity of these heavy expenditures created for wise purposes, resolved, under existing circumstances, to be very economical in giving a variety of small premiums on all articles of merit. This was faithfully and judiciously carried into effect by the awarding committees. The sum paid to successful competitors was one hundred and fifty-three dollars and fifteen cents.

We have omitted sending you a list of the persons to whom premiums were awarded, as said list was published in the "Ripley County American" of the 21st of September, 1855.

Since our last report we have been favored with a good supply of agricultural works from Indianapolis and from Washington City; also, a variety of seeds from the Patent Office. The latter, with a part of the former, were distributed among the people. This was considered a special favor conferred on the Society.

The present year's expenditures being considerable for a Society as young as ours, caused us to shoulder a small debt of some one hundred and fifty dollars. This small sum will be squared off the ensuing season.

At the annual election on the 28th day of July last, the following officers were elected for the present year, viz:

President, James C. Alden; Vice President, George Shook; Secretary, John Henry; Treasurer, Horace A. Mayhew.

Respectfully submitted.

JOHN HENRY, *Secretary.*

RUSH COUNTY.

[EXTRACT FROM REPORT OF 1855.]

Our Society is organized by the election of a president, vice president, secretary, treasurer, and twelve directors—one director from each township.

Owing to the fact that our Fair was held on three exceedingly

rainy days, we did not flourish quite as well as we had anticipated the past year. Our Society, however, is composed of from seven to eight hundred members. We gave, the past year, over five hundred dollars in premiums, all in silver ware. We gave premiums on all kinds of stock, mechanism, and products of the soil.

With regard to the prospects of our progress and usefulness in the future, our motto is, "go ahead;" and although we think we have heretofore done well, all matters being considered, we are earnestly endeavoring to become more useful and more conspicuous in the future. We have purchased for our fair grounds eleven acres of ground well adapted to our purpose. For general convenience, and especially for the easy and beautiful view into our stock ring that it affords to almost any number of spectators, it is not perhaps surpassed by any fair grounds in the State.

We are yet in our infancy, are some in debt for our fair ground, but we expect to exert ourselves to become both interesting and useful in the future. We have a rich soil, good stock, an industrious population, and every thing necessary to make our Fairs interesting and profitable, and we are determined to make them so.

Respectfully submitted,

BENJAMIN F. REEVE, *President.*

SCOTT COUNTY.

[EXTRACT FROM REPORT OF 1854.]

The Scott County Agricultural Society met at the court house in Lexington on the 22d day of January, 1854, and elected the following officers for the ensuing year:

President, Alonzo A. Morrison; Vice President, J. W. Read; Treasurer, W. L. Traylor; Secretary, E. G. Hallowell.

The 20th and 21st of September was agreed upon as the time for our annual Fair. In consequence of the drouth, our exhibition in agricultural products was quite limited. The exhibition of stock, however, was such as "little Scott," and in fact no other part of

the State need be ashamed of, particularly horses and mules. The interest and emulation manifested at our Fairs show a determination not to be left behind by any of our neighboring counties.

Much taste was exhibited by the young ladies and matrons in the various productions of their hands. Quilts of almost every variety and design, book marks, fine needle-work, and other articles, both useful and ornamental, were exhibited.

Ninety-seven dollars were awarded in premiums. Premiums were offered on many articles which were not exhibited, and some premiums and diplomas were awarded for articles not named in the printed schedule.

Upon the whole, we may say that our citizens generally are awakening to the great importance of turning a more careful attention to the subject of agriculture in all its various departments; and though the enterprise with us is but two years old, much good is already visible. Good papers, full of matter interesting and highly useful, are scattered broadcast throughout the county, diffusing light upon this subject. Our township libraries, too, composed of works upon almost every variety of subjects, have now come with further means for information, to the door of every family within the State, containing much valuable and interesting matter for the study and practice of the agriculturist.

We feel fully warranted in saying, in behalf of the citizens of our county, that they, in common with other portions of the State, feel a deep and lively interest in the best modes of cultivating the earth in order to the supplying of our wants—whose object it is to beautify and happify the earth—to make it a terrestial paradise of more than primeval beauty—to make man a better, wiser, and happier being, and thus promote the true glory and honor of the Creator.

ALONZO A. MORRISON, *President.*

EDMUND J. HALLOWELL, *Secretary.*

[EXTRACT FROM REPORT OF 1855.]

The Fair was held at Lexington on the 10th and 11th of October last. The interest in it manifested by our citizens was certainly

creditable, and affords satisfactory evidence that they are becoming awakened, and more thoroughly alive to the great importance of those subjects which it is the object of these organizations to cherish and develop.

Of course the ladies were upon the ground, and not only themselves but their beautiful handiwork. Almost every branch of their department was well represented, embracing numerous articles in which the useful and ornamental were tastefully and skillfully combined.

The premiums offered by the Society were considerably larger than those of the preceding year upon the various articles embraced in the schedule. Most of the second premiums awarded were agricultural books and reports. About one hundred dollars were paid in cash.

The greatest competition was for premiums upon horses. In this department we think we may be permitted to say, without boating, that Scott county has furnished and can now furnish specimens which might well meet with favor at our own or any other State exhibition.

As to crops, particularly the smaller grains, the competition was not so great, though exceeding that of the preceding year; the reports gave evidence, also, of improvement in the method of their cultivation. Potatoes, beets, pumpkins, etc., were exhibited in pretty fair quantities, of excellent quality, and very respectable proportions.

Of horned cattle and smaller stock, though pretty fairly represented on the ground, we have nothing to remark that is particularly worthy of attention.

It is in contemplation to purchase a suitable piece of ground for the use of the Society. Hitherto we have held no meetings except those for the election of officers, and the transaction of the necessary business affairs of the Society. These occurring at distant periods of time, the interest for awhile aroused has been partially allowed to subside or give way to other questions. Nevertheless we may be permitted to remark, in conclusion, that though in many respects we are not so far advanced as many other portions of the

State, still we are advancing, and we have reasonable and good ground to hope and believe that our citizens will all ere long be found laboring hand to hand, and shoulder to shoulder, with the most forward of those who in our land and in other lands are pushing on this great enterprise, which, through a thousand various channels, leads to our common prosperity and happiness.

A. A. MORRISON, *President.*

EDMUND G. HALLOWELL, *Secretary.*

SHELBY COUNTY.

[EXTRACT FROM REPORT OF 1854.]

The Society has temporarily discontinued the subscription to the various agricultural journals heretofore placed in our library, for the reasons below enumerated. Until the past year no permanent location of a fair ground was had by the Society, and the inconvenience of an annual change, and the additional expense occasioned thereby, was severely felt by the Society. With this view of the case, the President and Secretary, by direction of the Society, purchased thirty-three acres of land, east of and adjoining Shelbyville, and laid out a permanent location for our annual county fairs.

The fair ground contains about three acres, which has been inclosed, and sheds and stalls erected, in which the last Fair was held. It is the intention of the Society to dispose of the residue of said land not required for the fair ground, the proceeds of the same to be invested for the advancement of the interests of the Society.

Our premium list, the past year, was greatly increased in favor of stock, which seemed to be the general feeling and interest on the subject, although sufficiently liberal premiums were offered for the best specimens of workmanship and the mechanic arts, in both departments, exciting a laudable emulation among competitors for the premiums.

Our list of stock entered, horses and cattle especially, was at least fifty per cent. better than at either of the former exhibitions.

A general satisfaction was felt, by all interested, at the progress that had been made in this department. Our county, in common with her sister counties, suffered from the severe and protracted drouth, so disastrous to agricultural interest the past year.

In consequence of the purchase of the land above mentioned, the expenditures of the Society have exceeded the receipts very largely, but the sale of the excess not required by the Society will enable her to liquidate all her indebtedness, and place her on a permanent basis. Our silver ware, as premiums, was procured from Messrs. Talbott, Bailey & Co., which was of a fine durable quality.

Officers of present year are, John M. Worland, Vice President; G. W. McConnell, Secretary; T. A. McFarland, Librarian.

We feel confident that we shall soon be placed upon a sure and permanent footing, and be amply rewarded in the promotion of the general welfare for all our labors and exertions.

G. W. McCONNELL, *Secretary*.

[EXTRACT FROM REPORT OF 1855.]

The Society met on the 1st day of January, 1855, and elected the following officers, to wit:

John M. Worland, President; Jacob Vernon, Vice President; John S. Campbell, Treasurer; William Hacker, Secretary.

The Society numbers about one hundred and fifty members.

In the month of July, 1855, the then acting Secretary, through ill health, resigned, and Alfred Major was appointed to fill the vacancy.

The Society, during the year just closed, has been prosperous, numbering now about three hundred members. The Society own ten acres of land adjoining the town of Shelbyville, around which they have constructed a permanent fence, and inside the inclosure they have erected booths, &c., which piece of ground they occupy as a fair ground. Purchasing the ground, erecting the fence, booths,

and other conveniences, caused the Society to go in debt. However they are persevering onward; and the creditors of the Society, feeling great interest in its prosperity, are lenient. It is fully expected that before another year rolls over the Society their debts will all be extinguished.

Our annual County Fair commenced on the 19th day of September and lasted three days. The first day of the Fair was very unpropitious—raining incessantly the whole day—and it was supposed that the Fair would be a failure. The second day was fair, but the ground still continued very wet from the saturating rains of the previous day. Early in the day the exhibitors came with their stock, &c., &c., and a new zest and energy was inspired in every person's breast. The secretaries were kept very busy the whole day, and the receipts of the day amounted to over $300. The receipts of the Fair amounted to about $660. The premiums that were awarded amounted to about $450.

In comparison with previous exhibitions, this Fair was the best, notwithstanding the bad weather, ever held in Shelby county. In making this estimate we take into consideration the number and excellence of cattle and horses; the superiority of the agricultural and other machines; the extent and variety of fruits, &c.; the vast variety of ornamental needlework, and other domestic manufactures; the satisfactory management of the whole, and the respectable appearance of the people in attendance.

The third day of the Fair was beautiful. In the afternoon there was a great concourse of people on the Fair ground, assembled for the purpose of viewing several female equestrians compete for a premium to be awarded of a lady's saddle worth $25. Six ladies competed for the prize, and it was thought for some time that the judges could not determine who the lucky one would be. The ladies, without exception, were excellent riders, and the judges must have had a hard task to decide; but, after some time consulting, the badge of blue ribbon was pinned upon the dress of Miss Wilson, formerly a resident of Rush county but then a resident of Shelby county. Hearty cheers rent the air, and the ladies retired.

A continual advancing interest is felt in the success of the Society by the agricultural community at large. The generous emulation

excited at the late Fair, is a noble commentary on the progress of the people and their possessions, to which these annual gatherings contribute in so large a measure, gives promise of much additional improvement in the noble department of agricultural pursuits. This rivalry is not confined to agricultural operations proper, but extends in a great degree to the raising of stock of all kinds.

M. M. Ray, Esq., was requested to deliver an address, but at the time of the Fair, being called to Cincinnati to attend to some professional business of an urgent nature, he was compelled reluctantly, at a late hour, to address the Society per letter of his inability to comply with their request and his promise, owing to which no address was delivered.

Our county, this year, will rank high as to agricultural productions—the staple productions of the county being corn, wheat, oats, barley, potatoes, and hay.

Corn.—The whole amount of corn produced in this county, in the past year, is estimated at one million of bushels. The number of acres planted is larger than that of some previous years, and also the yield per acre is greater. Seventy-five bushels per acre is an average yield of corn for the past year. The price during the season, in our markets, is 33¼ cents per bushel. The corn is chiefly fed to hogs within the county and part shipped to Cincinnati and Louisville.

Wheat.—The whole amount of wheat raised in the county has been greater than any other year. It is supposed and estimated that there were five hundred thousand bushels raised in the county the past year, part of which is converted into flour at home and the residue shipped to a foreign market. The average yield per acre has been about twenty bushels—the price ranging from one dollar to one dollar and fifty cents per bushel. Our farmers are turning their attention to the raising of wheat, as it requires less labor than corn and brings a more remunerative price.

Hogs.—It is estimated that there will be shipped from this county, this year, to a foreign market, twenty-six thousand hogs. Mr. H. P. Johnson has erected a slaughter house in Shelbyville this year, and he will kill two thousand seven hundred hogs. This

is merely a commencement, and next year he intends entering largely into the slaughtering business. These hogs will bring into Shelby county the sum of three hundred and twenty-five thousand dollars. The average price has been five dollars per hundred.

Cattle.—There are but few cattle raised in this county that can be called full blooded; they are mostly grades and native. We have a few persons who are much engaged in the improvement of their stock, and there is a greater interest exhibiting itself than formerly.

Sheep.—The mass of the farmers, we regret to say, pay but little attention to the raising of wool of fine quality, and but little disposition is manifested to engage in wool raising beyond the wants of the domestic manufacturer.

There is great improvement being made in our town and county. There are now in the course of erection in Shelbyville three steam flour mills. Our enterprising friend H. P. Johnson is the proprietor of one, and it is contemplated by him to build one large enough for six run of stones. Our farmers, after the rich harvests, are building substantial dwellings and barns.

We would call particular attention to the inexhaustible quarries of stone on Flatrock. This stone, when polished, appears as fine and beautiful as marble. There is a large amount shipped from St. Paul's, on the Indianapolis and Cincinnati Railroad, which passes through the town. This railroad has been of incalculable benefit to the eastern part of our county, giving a market to the fine productions raised from the eastern Flatrock lands, &c. In short, our county is advancing rapidly in all the industrial improvements of the age. Land is increasing in value, and this county is doomed to be one of which the inhabitants can be proud.

All of which is respectfully submitted.

JOHN M. WORLAND, *President.*

ALFRED MAJOR, *Secretary.*

SPENCER COUNTY.

[EXTRACT FROM REPORT OF 1854.]

This Society was organized on the 5th of December, 1853; that it now consists of ninety two members; that it has had the difficulties common to every thing of the kind to contend with, from the fact that the masses do not at once see the benefit of it. But the friends of the Society predict for it a bright future; and there is abundant reason for this conclusion from the known fact of the industry, energy, and enterprise of our citizens, and that spirit of pride which prompts them to be with the most advanced in all improvements, and from the fertility of the soil and the natural advantages we possess, having a river border on the Ohio of forty-five miles, a great portion of it wide and fertile bottoms.

Our county is mostly what might be called rolling land, but there are some small portions of it that are too abrupt and steep to be cultivated. There is also some portions that are too low and swampy, but the greater body lays well and a large portion of it is very fertile. Those wet lands that were set apart as swamp lands, are in process of draining by the Swamp Land Commissioner. The mode of draining is the old plan of digging ditches with fall enough for the water to run to creeks or drains.

Our forests are very heavy in many portions of the county, consisting of most all the varieties that are natives of the West—such as poplar, ash, the various kinds of oak, beech, hickory, walnut, maple, &c., &c.

Rich deposits of coal are known to exist in different portions of the county, and it is believed that the beds of this mineral are very extensive. It is found at the depth of forty feet. There are some companies now organized for excavating it.

From the above facts we cannot think but that our county will stand among the first in the State in point of agriculture and wealth.

We held our first Fair on the 26th of October last. This was not what we could have desired; but when we consider that we had

just passed through one of the most extreme drouths that this age has witnessed, and that there was nothing in the vegetable line worth exhibiting, and that stock did not look half so well as they would had the season been good, and that it was our first effort, we regard it as quite satisfactory.

A. E. & M. Sharp, who took the premium on corn, furnished the following statement:

The ground on which the corn was grown was river bottom, broke in January, twelve inches deep, with a three horse team; was furrowed four and a half feet wide; corn covered with a plow and harrowed four days after planting, and plowed four times—twice with two furrows and twice with three furrows in a row.

We will here state that it is impossible to answer the various questions set forth by your body upon crops, stock, &c., in as ample a manner as we would desire. For instance, to tell the place of our market would be to name every landing along our extensive river border. The mode of cultivation is so various with different men; the opinions of men so different with regard to the different varieties of the same crop (just as their prejudices may have been enlisted for or against), and the lack of statistical information which we have not had the time and means to collect, are all difficulties in the way of directly answering your questions; but we will make such general remarks as we think the facts will warrant.

Wheat.—The chief varieties are Mediterranean, and what is called "white," or "New York Premium." Some still sow the little May wheat; but it has pretty well run out. The Mediterranean has been the chief variety for some years, and, we believe, is still the most popular with the majority of our farmers. The millers, however, and those who have raised the white wheat, prefer it. It yields more flour, and of a better quality, than the Mediterranean; while in production, under the same circumstances, there is very little difference. The white has been introduced more lately and is not so well known as the Mediterranean. The time of sowing is from the 15th of September to the 25th of October; but wheat should not be sown later than the middle of October. Clover land we regard as best for wheat. It should be broke in August—about

one bushel per acre is generally sown. The average yield is very difficult to guess at—it varies so much—owing to the soil and manner of putting it in; but we should suppose some where from ten to fifteen bushels per acre, and probably nearer the latter than the former.

Corn.—Of this crop it can scarcely be said that any variety keeps its identity; for it becomes mixed and the particular species lost sight of. It is frequently the case that a farmer gets seed corn from his neighbor, because he had larger corn than himself, without inquiring of what variety it is. There is a large yellow that is very productive, and a fine corn when well matured; but it is very liable to blow down, and is easier damaged than most other varieties. The yellow flint is also well esteemed, although it does not yield so well as the other, when the other meets with no disaster, but it is free from its objections. The varieties of white, as I have stated, are mixed and adulterated, so that none remain in their purity. This state of things has not been brought about because of any carelessness on the part of the farming community, in relation to this crop; for ours is a corn growing county, particularly on our extensive river bottoms. Corn is one of our chief staples. When we have a good season we are heavy exporters of this article. It is believed that it is profitable to select seed corn from the largest ears, and in this way the largest specimens of different varieties have been planted in the same field; but no bad result has followed. We still raise fine corn. The manner of preparing the ground, with some, is winter plowing, but most of our farmers brake when the time arrives for plowing. Brake from three to twelve inches deep. Time of planting, from the 15th of April to the 25th of May. We have no means of knowing the average yield.

Oats.—We sow from one to one and a half bushels per acre. Cannot state the average yield. Oats are raised to a considerable extent of late, and are an article of considerable trade.

Rye and Barley.—Very little raised.

Grasses.—Much attention has been paid of late to meadows. Our county now contains many large meadows, and every year the number increases. Timothy is the most highly esteemed for hay. The quantity of seed sown per acre is from six to ten pounds. The quantity cut is from one and a half to two tuns per acre.

No attention has been paid to the dairy business, nor can we answer definitely your questions upon neat cattle. They are raised, however, to a considerable extent, and the business is increasing annually. We are now introducing fine stock. When the improved stock shall have taken the place of those mostly raised, it will be a subject of much interest and a source of much profit to the county.

Sheep.—The raising of this valuable animal is neglected. The majority of our farmers have small flocks, but their experience does not enable us to answer your questions.

Hogs.—Considerable attention is paid to the raising of hogs, and the business is increasing every year. The pike-billed, or common breed, though not entirely gone, are fast vanishing, and their places are being filled by good and profitable breeds. The Byfield, Grazier, Berkshire, China, and Woburn, are the improved breeds with us; but we regard judicious crossing as better for the hog raiser than pure bloods. Berkshire and China are very small boned, get their growth quick, and fatten readily, while the Grazier and Woburn have very large frames and are much longer maturing. From the above facts, and our experience, we think that either the Woburn or Grazier, crossed with either of the above breeds, makes a better hog than any one of them would if kept pure.

Hemp.—This crop is entirely neglected in our county.

Potatoes.—Potatoes are cultivated to a considerable extent in portions of our county; the soil is well adapted to their culture; and if they are not troubled with disease they are destined to be a large article of trade and commerce. We have, for some three years past, been very much troubled with a bug which attacks them while the vines are in a green state, and strips them in an incredible short space of time, almost ruining the crop. There has as yet been no remedy found for them. To insure the best success, potatoes should be planted in good soil. If the soil is not good it should be manured. There is no fact we are better satisfied of than that potatoes cannot be profitably raised if the land does not have a heavy body—they require better soil than the most of crops. With good soil, deeply plowed, and thoroughly pulverized before planting, and worked enough after planting to keep the ground loose and

the weeds down, we expect an abundant crop, if they received the early and later rains. In working they should not be hilled too high.

Fruit.—We cannot very well answer your questions with regard to fruit. The selection of good fruit was very much neglected until within a few years past. There are now many large young orchards, of selected fruit, beginning to bear. When they are a few years older they will add much to our experience in relation to the best varieties to keep for winter use, &c. The Janeton is the best to keep that has been grown to any extent.

Respectfully submitted.

S. D. WILLIAMSON, *President.*

GEORGE THOMAS, *Secretary.*

[EXTRACT FROM REPORT OF 1855.]

The past has been a year of unusual prosperity with the agriculturists of our county. The statistical information you so much desire, and we feel would be of such service to you in making up an estimate of the wealth of the State in products, we are not able to give. It would require more time and labor to obtain the necessary information than we can devote to the subject. But we will say that all descriptions of crops have been good, and some of them largely in excess of any previous year.

We have no change to note in the mode of cultivating any of the crops since our last report.

There is now a good deal being done in the way of improving the native and procuring better breeds of hogs and cattle; but in this we are governed by the counsel of older stock raisers than we are. Consequently our experience would be worth nothing to the State Board.

Our Society now numbers seventy-one members. The second annual Fair was held on the 25th and 26th days of October. The competition was quite spirited, considering there were so few members.

Respectfully submitted.

S. D. WILLIAMSON, *President.*

GEORGE THOMAS, *Secretary.*

STEUBEN COUNTY.

[Extract from Report of 1855.]

The Society now numbers about sixty members, who pay the treasurer one dollar each year.

At the last annual meeting of the Society, the following officers were elected:

A. W. Hendry, President; Elisha Steere, Vice President; A. W. A. Sawle, Treasurer; Jesse M. Gale, Secretary.

A board of directors, consisting of one from each township, was also appointed.

Our county Fair the present year was held at Angola, on the 18th and 19th days of October, at which our farmers and mechanics exhibited a fine collection of their products, truly worthy of their high calling.

Our farmers are determined not to be outdone in the breeds of cattle. They had on exhibition beautiful specimens of the Durham and Devon. Among the sheep were good specimens of Spanish and French Merinos, Saxony, and Lesters.

In the department of fruits, it is believed ours, particularly apples, will compare favorably with those raised in any portion of the country, and an unusual crop was produced the past season.

Our wheat crop was much injured in the fall and spring by the ravages of the fly, and those fields that escaped entire destruction, were much injured by the wet weather in harvest, so that the whole did not exceed one-third an average crop.

The corn on most of our lands was good, as was also oats and rye.

Not having received a report from the treasurer of the Society, we are unable to present the true state of the finances of the Society. We drew from the county about twenty-five dollars, which, together with the funds received for membership, and the books received from the State Board, made a fair award of premiums to exhibitors.

At our Fair an address was delivered by the Rev. Jacob Patch, of Orland, which was listened to with marked attention, principally on the subject of fruit growing, and regret that we are unable to furnish a copy for publication.

Very respectfully submitted,

A. W. HENDRY, *President.*

JESSE M. GALE, *Secretary.*

ST. JOSEPH COUNTY.

[EXTRACT FROM REPORT OF 1854.]

We are happy to report that the Agricultural Society of St. Joseph county, now in its fifth year, stands in a vigorous and flourishing position. Like every similar association in our State, and elsewhere, we have had many difficulties to encounter, and have happily surmounted them, so that our condition stands about as follows:

The Society have a well fenced and shedded Fair ground, embracing three acres of town property in the borough of South Bend. This property is worth at least $1,000.

The members amount to over 500, and all feel a strong, unselfish individual interest in the advance of the great farming and mechanical results that are annually proving the advantage of associations of this character.

Slowly, but successfully, our county has proceeded year after year, until in October, 1854, the entries and receipts may be stated at follows:

Entries	694
Receipts	$425 00
Premiums awarded	$397 00

At no period since the formation of the Society, has there been so marked an interest manifested by our citizens at large. During the latter day of the Fair of 1854, the concourse of visitors to the

exhibition was very great, and we think we may safely estimate the number present during the afternoon, within the enclosure, as amounting to 3,000 persons. Every one seemed to more properly appreciate and understand the true objects of such combinations of the exhibits of the labor of the working classes, and the progress of the intellectual adaptation of mind to mechanism.

In compliance with the act of assembly relating thereto, we append the following statement of such statistics as are available:

Number of farms in St. Joseph county, 1854	1172
Acres of improved land	108,552
Value of farm implements	201,964
Number of horses	5,432
Number of milch cows	5,705
Number of work oxen	1,672
Other cattle	9,486
Number of sheep	24,768
Number of swine	25,771
Probable value of live stock	$798,984
Bushels of flax seed	972
Value of orchard products	$38,264

We annex a carefully prepared report made by W. H. Loomis, Esq., general superintendent of the nursery at South Bend. From it will be seen that our pomological and horticultural interests are thriving and advancing under skillfully directed effort.

REPORT OF W. H. LOOMIS, ESQ.

In an horticultural point of view we may be allowed to boast. Our different and varied soils are very particularly adapted to fruit raising. Variety of soil, and exposure, is with the fruit grower, among the indispensables; and ours, varying as it does from a stubborn clay to a loose, porous, and gravelly sections, together with our hilly lands and river valleys, give favorable localities for the culture of a great variety of fruits. Apple, pear, and peach orchards, are more productive under a northern exposure—the higher up a hill side the better. This renders the crop more certain, by aiding in keeping back the growth and spring bloom until all danger of spring frosts are out of the way. Better fruits cannot be grown than may or are being grown in the St. Joseph valley, as

our premiums on fruit from various sections attest. Our variety is extensive, having been collected from nearly every fruit growing State in the Union. In nearly every orchard will be found represented fruits from the Granite Hills of New England, the mountain ranges of Pennsylvania, and the fertile valleys of the Ohio and Mississippi. Hence it will be seen, that owing to the extensive variety, there must exist a host of misnomas in our fruit lists, which can only be corrected by frequent meetings of our nurserymen and fruit ameteurs, by which the error may in a measure be corrected. We wait patiently, and hope the time will soon come, when these meetings shall be more frequent, and a more general interest manifested by the peeple.

In the fall of 1853 there were 5,000 barrels of apples, saying nothing of pears and peaches, shipped from this borough to the Chicago market, not a bushel of which was bought from the producer for less than three shillings per bushel, many farmers selling from seventy-five to one hundred dollars per acre. My mind's eye now rests on several where the net profit derived from single orchards have been more than the entire farm besides, when in many instances the proprietor's domain extended over several hundred acres. To his farm careful attention was paid, while the orchard, the most valuable portion of the estate, was allowed to be covered with a luxuriant growth of ugly weeds.

The varieties which usually succeed the best in this section, and are most cultivated, are as follows:

Summer.—Prince's, Early Harvest, Red Astrachan, Summer Queen, Sweet Bough, Caroline Red June, Golden Sweet, and Summer Rose.

Autumn.—Fall Pippin, Rambo, Autumn Strawberry, Jersey Sweet, Porter, Bellmont, Gravenstein, Duches of Oldenburg, Maiden's Blush, St. Lawrence, and others.

Winter.—Raulls' Janett, Jonathan, White Winter Pearmain, Baldwin, Esopus Spitzenburg, Westfield Seek-no-further, Hertfordshire Pearmain, Northern Spy, Domine, Yellow Bellflower, White Bellflower, Hubbardston's Nonsuch, Lady Apple, or Pomme de Api, Rhode Island Greening, Winesop, Swaar, Roxbury Russett, American Golden Russett, Pryor's Red, Newtown Spitzenburg,

Ladies' Sweeting, Ramsdell's do., Pomme Grise, Peck's Pleasant, Dutch Mignonne, and a host of other valuable apples, many of which have originated at the west.

As regards the cultivation of this luscious and valuable fruit, much might be written, but suffice it to say, no investment can be made productive of as much enjoyment, pleasure, and profit, as fruit growing; besides, it is a health-giving, mind-feeding, and a delightful business to all who have any taste for the beautiful.

> Who like to roam in nature's fields,
> And pluck from earth her flowers,
> Who like to lounge beneath the vine,
> And taste refreshing flavors.

Besides, it pays a liberal reward for judicious and careful labor, and suffers as much by negligent cultivation, as does a hungry man minus his dinner.

Much has been said and written in regard to the proper distance at which trees should be set. In most cases thirty feet is far enough. Trees set that distance apart seldom crowd or interlock their branches. This is the distance apart best suited to general orchard cultivation. When the object is to raise apples for market, give the entire space to the growing trees; they may be set fifteen feet apart. Before they will crowd each other, the trees will have paid for themselves, and for the cultivation and interest on the capital invested. When they commence interlocking, every alternate tree should be cut back, by lopping off the limbs about one half the distance of the same from the body or stem of the tree to the end of the small last year's shoots; of course, this must be done on four sides of the tree. By this means, you have a double amount of fruit on the same ground, with no extra expense, except cost of trees and setting. Trees thus set out, will bear well for twelve or fifteen years; and then the trees previously set, may be removed, and you have a fine good thrifty orchard with the trees thirty feet apart.

The greatest error of the age is committed every day by trimming fruit trees as high as one can reach; and as they appear in nearly every orchard I have seen in Indiana; by allowing fruit and other trees, and especially the former, to form low heads, (in no case

should they exceed four feet,) they are protected from the hot and scorching sun, come into bearing much earlier, are longer lived, less affected by cold, and, in fact, there are a thousand reasons for having low topped fruit trees.

In the line of pear culture very little has as yet been done in our State, owing, doubtless, to the erroneous impression that one must wait a life-time to get rewarded for his labor. Common as this impression is, nothing was ever more erroneous; and I can only attribute this idea, which has become so fixed in the minds of many men, to the fact that their rule has been handed down from the days when there were very few pears in cultivation, except accidental seedlings or the pear thorn, which is indigenious to the Eastern States. True, seedlings are a long time coming into bearing; but when the country is as well supplied with good and reliable nurseries as at the present time, there can be no manner of use in setting out such trash. The idea that standard pear trees, (I mean pear or pear root), are so very long coming into bearing is a mistake. I have seen instances times almost without number where the Bartlett, Seckel, White Doyenne, and many other varieties which have borne as many pears as the trees could support while standing in the nursery rows, and before they had reached the age of five years from the graft or bud, and in many instances where only two or three years old. For orchard purposes, standard trees will prove most satisfactory in all cases where pears are wanted by the bushel. The pear succeeds well on most soils in our State, but a clayey soil with a dry subsoil is far superior. It should be remembered that the pear must have dry feet—in other words, it is very important to have a dry subsoil. Having such a soil, you may proceed to any extent in the cultivation of this most delicious of all fruits. No man need be afraid of over stocking the market. It cannot be done as long as the usual retail price continues to be ten cents each for small pears of the first quality, the usual retail price in Philadelphia, New York, Boston, Chicago, and other places. Either place is capable of consuming every good pear which can be grown, at least for the next ten years.

The market, then, cannot be supplied with a good, wholesome, and refreshing supply of fruits at least for a quarter of a century to come, notwithstanding the cry that the yield of fruit will be so great in a few years it cannot be given away. These were the re-

marks made in the eastern States fifteen and twenty years ago, but their dream has never been realized, and the price of fruits has slowly but surely advanced. Hence it is, the more fruit the more common becomes its use, and the greater the demand which ever has been and always will be in advance of the supply.

The White Doyenne, Bartlett, Flemish Beauty, Doyenne Grise, Buffum, and that class of pears are most profitable as market fruits, to be grown as standards. Past experience goes to prove that the White Doyenne, (Virgalien of New York, Butter Pear of Ohio and Pennsylvania), is without a doubt the best pear that can be grown. It always bears, is a hardy tree, and the fruit commands the first price in the market.

Pears or quince will but seldom succeed in this State or any other as long as the present system of cultivation is carried on, viz: treating every tree alike, giving them all the same cultivation without any regard to their adaptation to the soil, or exposure which surrounds them. A tree is a nicely constructed living thing, just as susceptible of improvement or neglect as an animal, requiring care and attention as much as any thing else; and unless the history and characteristics of a tree are understood by the planter, he may not expect to succeed. In the first place, one need not set a dwarf pear tree with the hope of success unless he first agrees to give the quince a loose, friable, and yet a retentive soil. This stock (I mean the Angus) must have clay. If not naturally abundant in the soil, it should be placed there by means of a horse and cart or otherwise, at least one wagon load of clay to each tree, well incorporated into the soil. Your soil thus well prepared, and the tree well set out, the surface should be well mulched with good compost of yard manure and leached ashes. This should be applied immediately after the tree is set, whether fall or spring setting, and worked into the soil with a spade or fork; and again replaced with the same material, and again worked in either in the fall or spring, as the case may be. The great secret of success consists in the above, and a judicious mode of cutting and pinching back.

The best of pears is very extensive, embracing several hundred that are claimed to be of the first class. There are over one hundred varieties in our town in a course of bearing—fifty or seventy-

five will produce fruit the coming season, all things being favorable, out of which there may be twenty really good varieties.

Varieties that succeed well on quince may be enumerated in part as follows:

Buffum, Beurre Diel, White Doyenne, Doyenne Grise, Tyson, Louise Bonne d'Jersey, Vicar of Winkfield, Osband's Summer, Summer Franc Real, Brown Beurre, Beurre d'Amelis, Bell Lucretive, Duches d'Angouleme, Forelle, Onondago, Oswego Beurre, Beurre d'Aremburg, Glout Morceau, St. Germain, &c.

The greatest difficulty with dwarf pear trees has been, that not more than one half the varieties grown on quince by many nurserymen are adapted to the quince, and can never find a comfortable home on that stock.

Respectfully submitted to the Indiana State Board of Agriculture.

WM. H. LOOMIS.

South Bend, January 11, 1855.

The wheat product of this county, the great staple of its prairies, was large beyond precedent. Our corn crop was but moderate.

Respectfully submitted,

E. ROSE, *President.*

E. F. DIBBLE, *Secretary.*
South Bend, December, 1854.

[EXTRACT FROM REPORT OF 1855.]

Our fifth annual Fair was held on the 24th, 25th, and 26th days of October, at which time the sum of $205 50 was awarded for premiums, a printed copy of which is herewith submitted. Most of the premiums have been paid; about five dollars yet remains unclaimed. The cash receipts at the Fair was $470 51; the amount would probably have been much larger had the weather been more favorable, but in this respect we were unfortunate, as, during most of the time, there was much cold wind and rain.

We feel satisfied that our efforts to promote the interests of agriculture in this county are duly appreciated, and have been attended with much success. An increased interest seems to be exhibited, and a stronger determination evinced to improve in such respects as will enable us to occupy the high position which our fertile and genial soil, and our great natural advantages seem to demand.

To report at the present time, in full, regarding the amount of our agricultural productions for the current year, is entirely impracticable.

The wheat crop is yet regarded as the great staple of this district. The yield this season was good, though considerable loss was sustained in harvesting, caused by the great amount of wet weather during the time the crop should have been secured. Very few have adopted other methods of culture in preparing the ground than simply one plowing and harrowing. Some have commenced the system of sub-soiling to a limited extent, which has been attended with marked success. On such lands as were adapted to their use, plaster and clover have yielded rich returns. The average yield of the wheat crop this year, is supposed to be about twenty bushels per acre. Harvest commenced about the 4th of July, and the crop was threshed principally in the field with the traveling threshers. Some stack in the field, and thresh in the fall and winter; very few store in barns. Our usual places of market are at South Bend, Mishawaka, and New Carlisle. The prevailing price during the present season was $1,50 per bushel. It is supposed that about one third the crop was lost by the wet weather. No trouble was experienced from the Hessian fly or weevel.

Corn.—The favorite variety in use, is the common gourd seed, or yellow dent corn. The ground is prepared by once plowing and harrowing, furrowed both ways four and a half to five feet apart, plant about the middle of May, leaving three stalks to the hill, plowed once with double shovel plow and twice with cultivator. Average crop about fifty bushels per acre. The crop was short this year, owing to much cold and wet weather in the early part of the season. Places of market as above; prevailing price forty cents per bushel.

The oats crop was a good average; yield about thirty-five bushels per acre. Quantity sowed to the acre, from two to three bushels. Price thirty-five cents per bushel. Very little rye and barley is raised.

Grass.—Our principal reliance for grass is upon the wild meadows or marshes, which yield from one and half to two tuns per acre. Our dry land seems not to be well adapted to grasses, the opening or barrens, being generally too light and sandy, and the prairies unsuitable, except for clover. The grasses most in use are timothy, red top, and clover. Many use a mixture of timothy and clover, which, when cut at the proper season, is much esteemed. Prices, tame hay, $12 to $15; wild hay $5 to $8 per tun.

Dairy.—The less said about this the better. Very little attention is paid to the dairy. Hardly a sufficient amount of butter, and not enough of cheese is produced for our own consumption. Average price of butter fifteen cents; cheese twelve to fifteen cents per pound.

Neat Cattle.—Our stock is improving; numbers have introduced the Durham and Devon stock, and our farmers generally are turning their attention to the raising of good cattle much more than formerly. Cost of raising till three years old, $12; average price at that age, $20 to $30. Value of good dairy cows in spring, $30 to $35; in the fall, $25.

Sheep and Wool.—A preference is shown for large sheep, or such a mixture as will produce good sized sheep, and a fair grade of wool. Raising for mutton seems to have rather the prominence. Wool growing is not esteemed as very practicable. Average price this season thirty-five cents per pound.

Hogs.—This is not esteemed strictly a pork raising county, though quite a large amount is annually produced. But very few of the improved breeds have been introduced, and not sufficient experience had with any of them to state which kinds are most esteemed. Most of the pork brought to market has been purchased and sent away in the carcass by railroad. Price $4,50 to $5,00 per hundred.

Hemp.—None raised.

Potatoes.—The varieties most esteemed are the white mashannock and white pink eye. The common system of planting is to plow and harrow once, furrowing the ground both ways about three feet apart, and plant with one good potato in a hill; time about the 20th of June; average yield about 175 bushels per acre; market price during the present season, twenty-five cents per bushel. The potato rot appeared here to considerable extent, many losing their crop most entirely. A few varieties recently originated from the seed escaped. A kind known as the white mashannock, of large and uniform size, and fine quality, is becoming very popular on that account.

Fruit Culture.—But very few regions of country surpass this for the raising of fruit, if we except the plum and peach. The plum is most entirely abandoned, no good remedy having been adopted to stay the ravages of the curculio. The peach crop is uncertain, owing to the prevalence of open weather in the winter, and late frosts in spring; but when not interrupted by these causes, the crop is very fine, as during the present season it was large. The apple and pear flourish best, and the supply obtained from this county and taken to Chicago, and other western towns for market, has become justly celebrated.

At a meeting of the Society, held January 5th, 1856, the following officers were chosen to serve during the ensuing year:

President, John H. Harper; Treasurer, Daniel Matthews; Secretary, D. Deming.

All of which is respectfully submitted,

E. ROSE, *President.*

D. DEMING, *Secretary.*

TIPPECANOE COUNTY.

[EXTRACT FROM REPORT OF 1855.]

The Society offered and published a list of premiums for distribution at its 4th annual Fair, which was held at Lafayette on the

3d and 4th days of October, a copy of which is herewith enclosed. Owing to an unusual amount of sickness in the country, and very unfavorable weather, the Fair was not so well attended as had been anticipated.

John D. Smith exhibited a great quantity of flint corn planted on the 28th of June, which had fully matured.

I have no data whereby to give the amount of productions in the county, but substitute the amount of various articles exported from this point, viz:

Bushels shipped by canal	1,324,871
Bushels shipped by railroad, north and south	1,000,000
Total	2,324,871

The average price for which the same was sold was about fifty cents per bushel, making an aggregate of eleven hundred and sixty-two thousand four hundred and thirty-five dollars.

Pork and lard shipped, 2,000 brls. value $14 per brl.,	$280,000
Beef shipped, 10,000 brls. value $12 per brl.,	120,000
Tallow and hides	20,000
Clover seed, 1,550 bushels, value $3 per bushel	6,000
Wheat and flour, 150,000 bushels, value $1,40 per bush.,	210,000
Total, exclusive of corn	$636,000

It will be seen from the above, that corn is our principal article. This Society numbers about 300 members, and from appearances has exerted a favorable influence in this county.

Our stock, as to quality, is improving rapidly.

The average yield of corn per acre in this county, as at present farmed, is about 40 bushels.

The officers of the Society are—

President, Amos Ford; Vice Presidents, Kelly O'Neal, Stephen Jones, John Doyle, and J. D. Smith; Treasurer, T. T. Benbridge; Corresponding Secretary, John Levering; Recording Secretary, W. K. Rochester.

W. K. ROCHESTER, *Secretary.*

Lafayette, Dec. 31, 1855.

TIPTON COUNTY.

[EXTRACT FROM REPORT OF 1855.]

This Society was organized on the 11th day of August, 1855, which fact was reported to your board; and on the 1st day of September, 1855, the Society met, and adopted a constitution and by-laws in conformity with the instructions of your board.

The first Fair was held at Tipton on the 4th and 5th days of October. The Society had gone to considerable expense in preparing the ground, and the exhibition would have been creditable had it not been for the extreme wetness of both days. So wet and rainy was it the second day that not a single lady could be found on the show grounds.

The Society numbers about seventy-five members, and mostly farmers. There seems to be some considerable disposition to improve, and especially the stock of cattle.

This county was organized in 1844, and the lands in the Reserve only came into market in 1848. But few farmers have their farms opened so as to give much of their attention to the science of agriculture, but the day is not far distant when Tipton county will stand among the first counties in the State in point of her agricultural products.

All of which is very respectfully submitted,

N. J. JACKSON, *President.*

JOHN GREEN, *Secretary.*

UNION AGRICULTURAL SOCIETY OF HENRY, RUSH, AND HANCOCK COUNTIES.

[EXTRACT FROM REPORT OF 1854.]

The executive committee proceeded to arrange a list of premiums, which, when completed, was found to foot up to about $700. Of that amount, $271.35 was silver ware, which was manufactured

to order by S. P. Bailey, of Indianapolis, and gave universal satisfaction, proving to be all that was bargained for.

The second Union Agricultural Society of Henry, Rush, and Hancock counties was held at Knightstown, Henry county, on the 6th, 7th, and 8th days of September, 1854. Although the weather was very warm, and the roads dusty, which fact prevented the presence of much live stock that would otherwise have been exhibited, a large number of entries were made of many kinds, especially horses—over one hundred; cattle, near same amount: sheep, swine, poultry, vegetables, grain and seeds, domestic manufactures, &c., in great variety. Miscellaneous articles, 137. The Fair was attended each day by a large and respectable number of citizens from the several counties.

JABEZ REEVES, *President.*

S. McCAIN, *Secretary.*

UNION COUNTY.

[EXTRACT FROM REPORT OF 1854.]

At the annual meeting of the Union County Agricultural Society held at Liberty on the first Saturday in November, the following persons were elected officers of the Society for the ensuing year:

William L. John, President; William Swann, Vice President; Recording Secretary, R. M. Haworth; Corresponding Secretary, Wm. Conwell; Treasurer, Elias Jarrell.

The second annual Fair of the Union County Agricultural Society was held at Liberty on the 14th, 15th, and 16th days of September, 1854. The days being propitious, the attendance from the country was large, and we also had the gratification of meeting many of the citizens of other counties. In consideration of the age of our Society, and contrasting this with our first annual Fair, the result of this augurs every thing for our future success. If a Fair could be taken as an index of the future prosperity of a Society, we claim to have made very great progress the past year.

There were 459 articles entered for premiums. This, when it is recollected that our county is only twelve by fourteen miles, is considered a very fair beginning. In the stock line, there were 111 entries of horses, 20 head of jacks and mules, 28 head of thorough bred cattle, 36 head of native and grade cattle, 63 head of hogs, 65 head of sheep; and we flatter ourselves that the stock thus exhibited would not suffer in comparison with the same amount of stock exhibited from the same sized territory any where in the State of Indiana. The grain and mechanical departments were very respectable; also the manufacturing department. The ladies' department was truly good, there being no less than 50 entries of needle work.

Of course, these things only constituted a few prominent features of the Fair—only an outline, which was beautifully and systematically filled up by the secondaries.

The Society during the year just closed has been eminently prosperous. There has been a steady increase of her members since her organization, and at the present date she has enrolled on her list five hundred and five names. A continually advancing interest is felt in the success of the institution by the agricultural community at large. The generous emulation excited at the late annual Fair is evidently not transient, but permanent and continuous, giving promise of much additional improvement in the noble department of agricultural pursuits. This rivalry is not confined to agricultural operations proper, but extends also in an extraordinary degree to the raising of live stock of all kinds, particularly horses, hogs, cattle, and sheep.

At two o'clock on the third day of the Fair, the crowd collected and listened with great and thrilling interest to an address delivered by the Hon. S. W. Parker—an address which did honor to the speaker and ample justice to the occasion—an address which will long be remembered by the Society and the citizens of the county as a first rate premium contribution.

All of which is respectfully submitted.

W. H. BENNETT, *President.*

R. M. HAWORTH, *Secretary.*

[EXTRACT FROM REPORT OF 1855.]

The third annual Fair of the Union County Agricultural Society was held on the grounds of the Society, near Liberty, on the 19th, 20th, and 21st of September, 1855. In the number of articles exhibited, the variety and quality of stock shown, and the zeal manifested by the members of our Society, it equaled any Fair ever held in our county. The amount of premiums awarded was about six hundred dollars.

On the 3d of November the annual meeting for the election of officers was held in Liberty. The following persons were chosen for the respective stations assigned them:

Wm. H. Bennet, President; R. G. Haworth, Vice President; D. P. Stubbs, Recording Secretary; J. W. Scott, Corresponding Secretary; Wm. M. Clark, Treasurer.

Union county is well adapted to all kinds of farming and stock raising. There is but very little waste land, and none but what can be made available for graising; consequently land sells for a high price. Perhaps it would not be out of the way to say that on an average Union county might be set down at forty dollars per acre, and she may safely challenge competition in that respect with any county in the State.

Respectfully submitted,

R. M. HAWORTH, *Secretary.*

VANDERBURGH COUNTY.

[EXTRACT FROM REPORT OF 1854.]

This Society has been in existence about three months, since which much good has been accomplished. We now number two hundred and thirteen members, and all manifest a zeal in the cause that warrants us in saying that our course is onward.

On the fifteenth of October last we held our first Fair, which exceeded in quality and quantity the expectations of the most sanguine.

A committee has been appointed to select a suitable piece of ground near the city of Evansville, to be used as fair grounds for the Society.

Our county, bordering as does on the Ohio, has a large quantity of rich bottom land, on which a great quantity of corn is raised. This land, overflowing every year, is somewhat replenished by the deposit; but some of our farmers are feeling the bad effects of planting the same crop year after year. The ingredients secreted in the soil calculated to produce corn has been found out and the land rifled of its riches, which nothing but the *subsoil* plow will restore; or rather it would be the easiest means by which they could be called into action. The average crop is 60 bushels per acre—price this year 40 cents per bushel.

Wheat.—This grain is grown in moderate quantities in this county. Average crop 15 bushels; price this year $1.25.

Oats.—A considerable quantity of this grain is produced here. Average crop 30 bushels; price 25 cents.

Barley.—Much barley is grown here. Average crop 40 bushels; average price this year $1.25.

Rye.—Not much grown here, therefore cannot say what the product would be if properly cultivated.

Hay.—Much of the flat lands in the north part of the county are made useful by the production of this crop, and indeed there is no crop that pays better. Average crop, 1¼ tuns per acre; price, this year, $12 per tun.

Potatoes.—Potatoes are grown for home consumption. The land produces fair crops, and would pay well if properly cultivated.

Turnips, *Beets*, *Artichokes*, and in fact all root crops do well here.

Grapes.—Much attention has been given to the culture of this grateful fruit, and our hills, in this county, will be *vine-clad* before

many years. The Catawba, Isabella, and Sweetwater do well here.

Apples.—This fruit does well here, although the rot this year deprived us of three-fourths of our crop.

Peaches.—Fine large specimens of this fruit are produced in this county, and it is a rare thing for us to be entirely without this luscious fruit. The river protects the trees from the frosts in the spring.

Plums, *Currants*, *Gooseberries*, *Strawberries*, and other small fruits do well here.

Vegetables.—Those for table use, our county produces as fine as any in the State, at least if those exhibited at the last State Fair were good samples from other parts of the State, Vanderburgh may, without any doubts as to the result, contend for the palm.

Our county is waking up in the matter of mechanical productions, and will, at the next State Fair, have many articles on exhibition which will compare favorably with those from other parts of the State. Our cabinet-ware is good; our edge tools cannot be beat. In hats, we throw down the gauntlet to the State. In fact all branches of mechanic arts are carried on here with the right spirit—not turning off their goods like Peter Pindar's razors, for sale, but for use and good quality.

Jacks and Mules.—The mule fever seems to be raging here, and he that can produce the finest mule is the lucky man, being able to realize at good prices.

Horses.—The stock in this county needs improvement, although good horses are raised here.

Sheep.—The low price of wool of late years has tended to make our farmers careless about this truly useful animal. There is great room for improvement, and we trust that ere long it will be attended to.

Hogs.—Good hogs are produced here, but they are not what they ought to be. Much could be done to improve the breed. The average price of pork to date has been $5.75.

Cattle.—In good cattle we are very deficient; very little pains has been taken to improve the *scrub* stock of our county. Why this is so we cannot say, for beef cattle and good milch cows bring good prices. Our farmers have yet to learn that it costs no more to feed a good beast than it does a poor one.

We incline to the opinion that the building up of those agricultural and industrial societies will do more to the development of soil and mind than anything that has occurred in the present century; they create a friendly emulation to excel; they stir up the lazy, wake up the indifferent, reward the industrious, and, in fact, if *properly managed*, are calculated to do more good (*save and except our free schools*) than any other organization within our knowledge. Whilst the powers of Europe are wasting their energies in war and bloodshed, let it be our province to cultivate those means best calculated to promote peace.

One suggestion in regard to the management of our State Fair and we close. Let the Secretary of the State Board place himself in correspondence with the secretaries of the county societies; let him make known to them the number and kind of persons wanted as judges on the committees of award; they would then be able to select such persons as are best qualified to act, and learn from them whether they will act or not; their names could then be reported to the Secretary of the State Board, and by this means persons would be selected *capable of judging, and having no other end in view* than the advancement of the industrial interests of our State.

PETER SHARPE, *President.*

P. HORNBROOK, *Secretary.*

Evansville, December 31, 1855.

VIGO COUNTY.

[EXTRACT FROM REPORT OF 1854.]

The Society has obtained no account from contributors for premiums on crops or other improvements, detailing the mode of tillage or process of the improvement.

The Society had no addresses on agricultural subjects delivered to them the previous year; and though the interest manifested in the great cause of agriculture is less ardent than it should be, yet the Society have a reasonable hope that they exercise a salutary influence upon the producing class, and that their efforts in promoting the cause of agriculture will be crowned with success.

The year of 1854 will be long memorable in the annals of Vigo county for the failure of the crop of corn, which is the great staple of this county, and of the crop of potatoes and turnips. Wheat was only a medium crop; oats heavy in straw but light in grain; hay, owing to a wet spring, good.

THOMAS DURHAM, *President.*

A. LANGE, *Secretary.*

WARREN COUNTY.

[EXTRACT FROM REPORT OF 1854.]

We held our county Fair this year at Covington, on the 18th and 19th days of October. There was a large attendance of visitors, and a very fair amount of entries, especially of horses. There were some good cattle of the Durham, two or three that might be exhibited anywhere with credit to the owners.

The grade cattle was very good. Sheep and hogs were very poorly represented, the best raisers making no entries.

The mechanical department was but ordinary. Some very good specimens of mechanical skill. There were not many entries in farm products, but some that were worthy the premiums. Wheat, forty bushels per acre; corn, eighty-five bushels per acre.

The ladies' department was very fine, and particularly so, the equestrian exhibition.

The officers of the Society are as follows:

President, G. D. Wagner; Vice Presidents, James Williams, and Robert Brown; Recording Secretary, Joseph Poole; Corresponding Secretary, B. F. Gregory; Treasurer, W. H. Clark.

We have about three hundred members; though a great many of them take little interest, and they the very men that would be most benefitted; and the simple reason is, they do not see and realize immediately a large profit in their pockets in the shape of dollars and cents—for nothing else pays or interests such men:—yet we see a spirit of improvement at work. Two lots of Kentucky cattle have been sold in Warren county this season, besides several that have been bought in Ohio and Kentucky and brought here. It is to be seen no less in the improvement of the buildings, tillage, and a better taste generally. No country, be it ever so rich and fertile, if the people have not a taste for improvement, will attract the notice of strangers. It is always better to read the statistics, than to travel through it.

The upper part of Warren county has had a better crop this year than usual, and has fed three times the number of hogs:—they were brought here from Kentucky, and the southern portion of our own State, and fed here on our corn, bought at from twelve to sixteen dollars per acre. Our men have made it pay beyond anything seen here before. Two or three such seasons would make them independent, but I think Kentucky will not try it soon again; as pork, at those prices for corn, is not paying.

The cost of raising an acre of corn is about three dollars, and it will yield about fifty bushels—that is on old land. On new land, the cost is not above two dollars per acre, with a yield of seventy-five bushels.

We raise but little wheat—we can make more money at something else; and that is cattle, corn, hogs, and horses.

Respectfully submitted,

G. D. WAGNER, *President.*

HORTICULTURE IN WARREN COUNTY.

G. D. WAGNER, Esq.

DEAR SIR:—In answer to your inquiries as to the extent of improvement in horticulture in the county of Warren, I have to say that no very extensive improvement has been made. A few have made efforts to introduce choice garden fruits, and cultivated flowers, as a matter of amateur enjoyment. Those introduced have been principally of the hardy varieties, not requiring much time and attention. The dwarf fruits are attracting attention. Among the pears we have the Bartlett, White Doyenne, Duchess d'Angouleme, and Louise de bonne Jersey. Some others have been introduced, but I am not able to state how many nor the various kinds. Some attention has been given to strawberries; and I have been disappointed to find that those which have a high reputation elsewhere do not commend themselves upon experiment. As far as I have been able to determine, from experience, the Hovey Seedling and Burr's New Pine, which are so highly extolled in the reports of some of the eastern States, do not maintain their reputation here. I have a staminate variety, said to have originated in Ohio; it is very productive, hardy, stands our winters remarkably well, and in point of size is about two-thirds as large as Hovey's Seedling, and I think superior to any other variety in flavor. I have not seen it mentioned in any of the reports of other States, and but once in the catalogue of a nursery, from which I am led to believe that it is a variety but little known as yet, and I cannot too strongly recommend its culture in this section of the country, to which it seems admirably adapted. Of the flowers many annuals are cultivated; and that most magnificent of all flowers, the rose, is being introduced and, as a necessary consequence, appreciated. A new variety of the rose has made its appearance within a few years, which is deserving of attention in the west—the Remontantes, or reproducing rose—they will bloom with intermissions during the season, and can remain entirely unprotected during the winter without injury. They are very beautiful, require but little attention, and with the exception that no white rose of that class has yet been produced, are certainly the most desirable of all the numerous varieties. I believe this short sketch will be found to comprise all that has yet been attempted in these particulars. Our county is

young; and whilst preparations are being made for the future, in the planting of orchards and the embellishment of gardens, we can boast of no eminence as yet.

Yours, truly,

JAMES R. M. BRYANT.

WAYNE COUNTY.

[EXTRACT FROM REPORT OF 1855.]

The fifth annual Fair of the Wayne County Agricultural Society was held in Centerville, on the 10th, 11th, 12th, and 13th days of September, 1855. In the number of articles exhibited, the variety and quality of stock shown, and the interest manifested by the mechanical and agricultural community, it equalled, if it did not exceed, any other Fair previously held in the county, especially when we take into consideration the inclemency of the weather—it having rained on every day of the Fair, and two days almost incessantly. The amount of premiums awarded was over twelve hundred dollars.

The receipts from all sources were	$1,874 60
Expenditures	1,915 58
Leaving a deficiency of	$40 98

On the 17th day of November, the annual meeting for the election of officers was held in Centerville. The following named persons were unanimously elected to the respective offices assigned them:

David P. Holloway, President; Solomon Meredith, Vice President; Moses D. Leeson, Secretary; Andrew F. Scott, Treasurer.

The premium list for the ensuing year has already been made out, which is one of the most liberal that has ever been offered to the agricultural and mechanical interests of the State, there being over 140 premiums offered in silver cups, besides numerous others

of smaller magnitude; and the Fair being thrown open for the competition of the world, with the banter of "come on boys, if you can beat old Wayne you are welcome to all you can get," will, without doubt, make our next annual Fair of great interest and benefit.

Respectfully submitted.

DAVID P. HOLLOWAY, *President.*

MOSES D. LEESON, *Secretary.*

WABASH COUNTY.

[EXTRACT FROM REPORT OF 1854.]

On the 27th day of January, 1854, the Wabash County Agricultural Society elected William T. Ross, President; Alanson P. Ferry, Treasurer; and Calvin Cowgill, Secretary, with a board of directors consisting of one member from each civil township in the county.

The second annual Fair was held on the 5th and 6th days of October, at Wabash, and was attended by numerous citizens from every part of the county, and many from adjoining counties.

There was an address delivered on the second day of the Fair by John M. Wheeler, Esq., of this county.

There are about two hundred members belonging to this Society, and the lively concern which many of them feel to promote its best interests are indications of its onward progress and future usefulness. Indeed it is almost a matter of astonishment to witness the rapid change which has taken place among our farmers in the way of improving the breeds of their domestic animals since the organization of this Society, which, without doubt, has been the exclusive cause of emulating them to so praiseworthy an enterprise.

The financial condition of our Society will be seen by reference to the report of the Treasurer, which, it is thought, will meet the requisitions of the law.

Owing to a want of the necessary information to enable me to correctly answer the questions propounded by the State Board, it is feared that this report must be very incomplete and unsatisfactory. I will, however, proceed to give such information as the limited means I have of acquiring it warrants.

Wheat.—The best varieties in use are thought to be the white Wabash and the white blue-stem, while various other kinds are produced in much abundance, such as the red-chaff bearded, the club, the New York flint, the Mediterranean, &c., &c., each of which having its admirers, many of whom will strenuously contend that their own kind or variety is best. But one thing is certain, the various kinds of white wheat command from eight to ten cents per bushel more in market than the red wheat, and while it is pretty generally admitted that the white Wabash and white blue-stem will yield as much per acre as any of the other varieties, and, having a stiffer and stronger straw, are rendered less liable to be damaged by lodging, we are inclined to give them the preference. The best method of preparing the ground for a wheat crop is to summer fallow, plowing the ground first about the beginning of June, and then cross-plowing it in time to sow the wheat about the last of August or first of September, when our farmers sow, upon an average, about a bushel and a peck to the acre and harrow the ground until the wheat is well covered. This plan pursued, the farmer rarely, if ever, fails to get a good and paying crop. I know of some in this county that have tried the experiment of using the drill in putting their wheat in the ground, and hence am unable say what result it might produce. When sown in proper time, and the ground in proper order, the average crop is about twenty bushels to the acre. Still I have known many crops harvested in this county that far exceeded that yield. Our usual places of market in this county are Wabash and Lagro, both of which places are situated on the Wabash and Erie Canal, which furnishes us a means of transportation to the eastern markets. But there are many other points in the county where the farmer can always find a ready market for his wheat besides those mentioned, at the same prices less the cost of carrying to the canal, viz: Manchester, Liberty Mills, Somerset, Ashland, &c. The prevailing price at Wabash during the present year has been $1.40 for red and $1.50 for white wheat. The yield last harvest was not quite so large as formerly,

from the same quantity of ground sown, but I have not the means of knowing about how much it will fall short, nor of stating accurately the quantity grown in the county. I am unable to mention any remedy that may be safely relied on for Hessian fly, or weevil.

Corn.—The soil in this county seems to be well adapted to the growth of this grain, and so well do our farmers understand it that it is to be feared that many of them will continue to grow crop after crop on the same field, merely from the fact that they consider it sure pay at harvest—that they will quite exhaust their lands and be compelled not only to gather short crops in the end, but be driven to the necessity of using composts, and, to use a term common among farmers, give their land "rest," in order to restore those properties in the soil that might have been retained by a proper rotation of crops. The usual manner of preparing the ground for corn is to plow it early in the spring, as deep as an ordinary two-horse plow will turn, and, if rough or cloddy, harrow until well pulverized, after which it is planted in hills from three and a half to four feet apart. The usual time for planting is from the 1st to the 15th of May. An average crop is about fifty bushels per acre, though our rich bottom lands will produce much more. Our usual places of market are Wabash and Lagro, from which points large quantities are shipped to the east annually. The prevailing prices have ranged from forty to fifty cents per bushel at Wabash this year. Our crop for 1854 is not quite an average crop, owing to the drouth; though I think it is not so much short in consequence of that cause as in many other portions of the State.

Oats, Rye, and Barley.—Of oats there is quite a large crop grown by our farmers; the average price is twenty-five cents per bushel. Of rye there is but little grown, but if sown in good order the farmer rarely fails to get a paying yield. There is little or no barley raised in the county.

Grass.—Timothy is esteemed the most profitable grass for hay by our farmers, there being very little land in the county that will not produce a first rate crop when put in a proper condition for meadow. We generally mow from one and a half to two tuns of hay from an acre, and from our low rich soils not unfrequently twice that quantity. Where our lands are a little on the wet order

they produce excellent herd grass, or red-top as it is sometimes called. We also grow the red clover in this county, of a quality inferior to none in any portion of the State. Hay is worth $8.50 per tun.

Dairy.—There is but little attention given to the dairy by the farmers of this county, further than is necessary for family consumption. Butter is worth from 12½ to 15 cents per pound, cheese the same.

Cattle.—Much attention is being given to the raising of cattle in this county, and the farmers and stock raisers are taking great pains to improve their breeds by introducing improved stock from the States of Ohio and Kentucky, bred originally from imported stock. It would be impossible for me, at this time, to correctly give the pedigree of any. Our best cattle are a cross between the short horned Durham and other breeds, possessing qualities greatly superior to the common stock of the country. The cost of rearing till three years old is from $10 to $14, at which time they will bring from $20 to $25 per head. Good milch cows rate from $18 to $25 per head.

Sheep.—Small numbers of this animal are kept by most of our farmers for the wool for family consumption; they are generally healthy, and I see no reason why sheep raising may not soon become a source of much profit to the stock grower in this county; still few are giving it their attention, at this time, as a business. Our county, being new, has been much infested with wolves, hence the farmer considered it rather hazardous to invest much capital in that kind of stock. But as our heavy forests are rapidly melting before the woodman's axe, and the wild places being fast reclaimed by the hand of industry and made to produce the necessaries of life—the wolf driven to other quarters—it is to be hoped that ere long much attention may and will be given to raising that useful animal.

Hogs.—Considerable attention is given by many of our farmers to the raising of hogs, and especially those occupying the rich bottom lands along the streams, where large crops of corn can easily be grown. The best breeds are considered a cross between the Irish

Grazier and Poland, or Byefield. Pork is worth $3 to $3.50 per hundred.

Potatoes.—This crop has done well in this county generally. The crop last season not so good as formerly, on account of the drouth. We have many varieties here, such as the meshannock, pink-eye, common red merinos, shaker blues, &c. Amongst which I am inclined to give the preference to the pink-eyes, from the fact that they have more good qualities than any of the other varieties, and are less liable to rot. Price, from seventy-five cents to one dollar per bushel.

Fruit.—We have almost all kinds of fruit common to this climate, and our husbandmen deserve much praise for the pains they have taken to plant and protect their orchards, more especially of apples. Rarely indeed do you pass a farm in Wabash county upon which there may not be seen a thrifty young orchard of the most choice selections of cultivated fruit; and while we have almost every variety of apples considerable pains have been taken to cultivate other kinds of fruit, among which may be mentioned the pear, the peach, the various kinds of cherries, plums, grapes, &c.

Soil, Timber, &c.—The face of the country in Wabash county, except along the streams, may be said to be rolling, or gently undulating, with a rich and fertile soil, abounding with the most valuable forest trees common in the west, among which may be named the oak, of almost every variety, poplar, walnut, hickory, ash, elm, maple, wild cherry, beach, and other kinds of less value, in great abundance. Perhaps it may not be amiss to state that many persons here are giving considerable attention to the lumber trade, and large quantities of our fine black walnut timber, which for its beauty and excellent qualities is not surpassed by the growth of any other country on the globe, is annually converted into lumber and transported to our eastern cities for a market.

The Wabash river flows nearly through the center of the county from east to west, while, in the same direction, Eel river flows through the north and the Mississinewa in the south or southwest. The Salamonia, entering the east side side of the county, flows in a northwestern direction to its confluence with the Wabash at Lagro, six miles above the seat of justice for Wabash county. These rivers,

with the numerous smaller streams, supply us with many valuable water privileges, quite a number of which have and are now being improved, while the immense tracts of bottom land bordering them, when once brought under a proper state of cultivation, must make this county one of the foremost agricultural districts in the State.

I know of no land in the county that may not be very readily brought under cultivation, with the exception of some small lakes on the north side of Eel river, which are so inconsiderable indeed that to include the whole covered by them would make an area of fewer acres than is contained in a half section of land.

Being unprepared to report more fully the condition of the Society, at this time, with other matters properly connected therewith, the above is respectfully submitted.

WILLIAM T. ROSS, *President.*

C. COWGILL, *Secretary.*

WELLS COUNTY.

[EXTRACT FROM REPORT OF 1855.]

This Society was organized in February, 1853; it numbered at that time about thirty members. A Fair was held in the fall and considerable interest manifested to perpetuate its usefulness. The Fair, it is true, was not blessed with the variety or quality usually seen at the fairs in older counties. In 1854, owing to the inclement weather and the general sickness prevailing at that time, the Fair was unattended. In 1855 a vigorous effort was made to resuscitate its prostrate condition, and it was attended with a success beyond the most sanguine expectations.

On the second of October the Fair came off. On the first it rained nearly all day; on the second it was pleasant, and the sample of plowing done honor to the "plowmen." The articles and stock on exhibition showed a decided improvement over the articles and stock at the first Fair. In fact, the furniture, plows, carriage work, several samples of agricultural implements, cattle, horses,

mares, geldings, sheep, hogs, fancy needle-work, home-made cloth, and yarn, pomological productions, &c., were all good samples of skill and care. There were at least three hundred and fifty persons in attendance. The Society now numbers about seventy members. An interesting address was delivered before the Society by I. D. G. Nelson, Esq., on the 5th of October.

Up to 1848, Wells county imported grain, flour, and meat, for home consumption; this was owing, however, to the great tide of emigration in settling up the "Indian Reservation" and other parts of the county. Since that date the county has continued to export largely. Wheat, corn, and hogs are the principal articles of export, but cattle and horses are being raised in considerable numbers. The price of pork ranges from $4 to $6 per hundred pounds, wheat $1.25 to $1.50, corn from 40 to 50 cents per bushel.

The soil throughout the county is well adapted to grain and grazing. In some parts the ditching process has done wonders in reclaiming swampy lands and fitting them for cultivation. This is always a rich alluvial soil, and when reclaimed or drained by ditching produces corn and wheat abundantly. The farmers use the steel mould-board plow, and open up the soil from six to ten inches in general. The advantage of this kind of cultivation is fourfold over the old method of stirring the ground. Deep culture and the clods well broken by a good long-tooth harrow is adding wealth to our enterprising farmers.

All of which is respectfully submitted.

S. G. UPTON, *Secretary.*

WASHINGTON AND ORANGE COUNTIES.

[EXTRACT FROM REPORT OF 1854.]

This Society is composed of the counties of Washington and Orange, and was organized at Livonia, Washington county, in January, 1853. Its first annual meeting for the election of officers was held at Livonia on the 12th day of March, 1853.

The second annual meeting of the Society was held in Livonia, in March, 1854, when R. Schoonover was chosen President; John Baker, Vice President; Alexander McPheeters, Treasurer; Nathan Kimball, Secretary; Dr. A. W. Gray, of Orleans, W. M. Vance, of Livonia, and S. W. Regney, of Paoli, Marshals; and one director for each civil township in the district, twenty-three in number.

The second annual Fair of the Society was held at Orleans, Orange county, on the 19th, 20th, and 21st days of September, 1854. I herewith submit a printed list of the premiums offered by the Society on that occasion, and the Secretary's report of premiums awarded by the Society. By order of the Directors all premiums were paid in silver plate, agricultural papers, agricultural reports, and books on agriculture.

The attendance at the Fair was such as to assure the friends of agricultural improvement that the interest of the masses on that subject had not diminished since the first annual fair of the Society.

The first day's exhibition consisted of domestic manufactures, household fabrics, needle-work, fruits, flowers, paintings, vegetables, fowls, and dairy products. Of the three first of the above, the entries were numerous, and the products of female taste and industry such as would do credit to any portion of the State.

The excessive drouth which prevailed in this part of our State during last summer and fall, measurably destroyed our garden and fall crops; consequently the exhibition of fruits, flowers, vegetables, &c., was not such as otherwise might be expected in our district.

The second day was appropriated to the exhibition of machinery, stock of all kinds, worked metals, and farm implements.

Of horses, mules, and cattle, the entries in the different classes were numerous and the exhibition fine. The attention of our farmers has for some time been turned in this direction; they emulate each other in their efforts to procure the most approved kinds of stock. Their success in this department of agriculture is marked by an evident improvement in the stock of the district.

Of sheep and swine the entries were not numerous. There was, however, a few fine specimens of both on exhibition.

Of farm implements there were but few entries. It is to be regretted that our enterprising mechanics have not manifested a greater interest in such exhibitions and exhibited at our Fairs a greater variety of the products of their skill and industry.

R. SCHOONOVER, *President.*

[EXTRACT FROM REPORT OF 1855.]

The annual Fair of the Society was held on the 10th, 11th, and 12th days of October, and was well attended.

Lists of the premiums offered and premiums awarded form a part of this report.

Early last spring the Society determined to locate, for the term of ten years, the place of holding its annual fairs. In pursuance of this determination, a lease was taken upon a suitable site adjoining the town of Livonia for ten years, with the privilege of extending it to fifteen years, at twenty dollars per annum. This site has been inclosed with a strong plank fence, at an expense of $520.30

At a meeting of the Society, on the 21st day of June last, the time of the annual meetings of the Society was changed from the second Wednesday of March to the fourth Thursday of December, annually. This change will enable the Society to publish its annual list of premiums offered at a much earlier date than they could have done under the former arrangement.

Our farmers have been favored with plenteous crops this year. The specimens of grains and fruits exhibited at our fair were very fine; and we presume they were not surpassed by those presented at any similar exhibition in the State. The farmers brought out their stock from every part of the district; and the improvement made in this department, in two years, was truly surprising. Our district will now compare favorably, in this particular, with any portion of the State.

From the progress already made we hope for still greater improvement in future. Of our numerous, industrious, and enterprising mechanics, few favor us, at our fairs, with the productions of their skill. As this department of labor is most important to agricultural advancement, we hope for better things hereafter. The ladies of the district—thanks for their liberality and public spirit, they are always foremost in the support of every noble and useful enterprise—were present, hundreds and thousands, with the graceful products of their skill and industry. Their presence and contributions in the various departments of female labor added largely to the interest of the occasion.

This Society is now firmly established, and we think a bright prospect for usefulness is open before it. The membership for this year is 302. The Fair grounds being permanently located, with the judicious expenditure of a very small sum they can be well improved. The Society will be able, at the next Fair, to offer a premium list of from nine hundred to one thousand dollars.

Respectfully submitted,

R. SCHOONOVER, *President.*

C. H. PERINE, *Secretary.*

DEARBORN COUNTY.

[EXTRACT FROM REPORT OF 1855.]

The President and Secretary of the Dearborn County Agricultural Society present this their fourth annual report.

At the annual meeting of the Society, held in April last, the following officers were elected for the present year:

Wm. B. McCullough, President; Harrison Dawson, Secretary; Reason Rees, Treasurer, and one director for every civil township.

The Fair was held on the 25th, 26th, and 27th days of September. A printed list of premiums offered and awarded accompanies this report.

The following is an abstract of the Treasurer's report:

RECEIPTS.

Amount of balance on hand	$16 50
Amount of uncurrent paper	6 00
Amount received for lumber sold	44 72
Amount received for membership and proceeds of Fair	545 50
Total receipts	$612 72

EXPENDITURES.

Amount paid premiums	$264 20
Amount paid for lumber, fitting up, and incidental expenses	319 75
Total expenditures	$583 95
Balance in treasury	$28 77

The committees on farms and field crops have not reported. We may remark, however, that crops of all kinds have been very good, and the farmer has been amply rewarded for expenditures and toil.

The attendance during the Fair was respectable, and we think the exhibition will compare favorably with any preceding Fair held in the county: still it did not equal the expectations of its friends. The Society numbers two hundred and fifty-seven members.

A very able address was delivered, on the third day, by the Rev. Mr. Chidlaw, a copy of which we will endeavor to procure and forward in time for publication.

An essay on agriculture, by Judge A. I. Cotton, will accompany this report.

We cannot speak boastingly of the present condition of this Society—a collapsed stage is apparently approaching. We flatter

ourselves, however, that, by the application of a few appropriate remedies, reaction will be restored, and yet find old Dearborn taking rank among the first agricultural counties of the State.

All of which is respectfully submitted.

WM. B. McCULLOUGH, *President.*

HARRISON DAWSON, *Secretary.*

MARION COUNTY.

[EXTRACT FROM REPORT OF 1855.]

In compliance with the act of the Legislature, the Marion County Agricultural Society published a list of premiums for the year 1855, to be competed for by exhibitors at the Fair of the Society, held at Indianapolis on the 3d, 4th, and 5th days of October last, a copy of which list is annexed. Also, the awards made pursuant to said list by the several examining committees, was published in a newspaper of the county, as was also an abstract of the Treasurer's account, copies of both of which are herewith submitted.

It will be remarked by reference to the published awards, that premiums were given for early maturing fruits and vegetables. The exhibitions for competition for such premiums were held on the first and third Saturdays of each month, until the annual Fair, beginning with the first Saturday in May. This feature of our yearly proceedings was introduced to encourage the agricultural productions which mature before the Fair, and proved a most valuable and interesting part of the Society's endeavor to foster and encourage every beneficial production of the farmers, and to bring forward the early products of the year to supply the decreasing stores of winter. The effort is to have fruits and vegetables during the year, to so preserve the autumn products that they may nourish through the winter and bring the spring gardens close on the heels of retreating snows.

The Fair of the past year presented a display of articles from the farm and shop exceeding that of any previous year. Nor did the

household fabrics fail to tell of the busy wheel and industrious fingers of the thrifty housewife, while the floral department adorned the whole with every variety of the green-house and garden. Of stock there were 287 entries; of grain and crops, 56; of fruits and vegetables, 113; of farm implements, 30; of leather and leather manufactures, 10; of carriages and cabinet furniture, 25; of dairy products, 26; of flour (in which class was included bread), 33; of needle-work, 47; of domestic manufactures, 70; of flowers, 13; of poultry, 51; for plowing match, 8; for riding (in which class are included riding by ladies, gentlemen, and boys), 42; in miscellaneous class, 106; making in all 917 entries. The premiums were principally paid in silver-ware.

The membership of the Society numbers over five hundred and thirty.

Owing to rain on the last two days of the Fair the receipts were not so large as anticipated, and the exhibition in part was postponed to the 11th of October, when the awards were declared, premiums delivered, and the Society listened with interest and pleasure to the address of Dr. A. C. Stevenson, a copy of which is herewith submitted.

Any correct estimate of the crop productions of the past year is difficult to make—they suffered, particularly wheat, by frost, on the night of June 2d. The wheat that was injured was in low ground comparatively. The season was what we call wet, and some harvests were injured by too late gathering. Average of wheat about 12 bushels per acre. There was a fair crop of corn, averaging 60 bushels per acre, notwithstanding the frost. Prices have ruled about as follows: The average price paid for wheat, at Indianapolis, from August 1, 1855, to January 1, 1856, was $1.25 per bushel; for corn, during the year 1855, 45 cents; for oats, 30 cents; potatoes, $1.40. Pork ranged in the fall of 1855 from $5 to $6 per hundred net.

FIELDING BEELER, *President*,

JOHN S. TARKINGTON, *Secretary*.

PREMIUM ESSAYS.

READ BEFORE THE

INDIANA STATE BOARD OF AGRICULTURE.

ON THE CULTIVATION OF WHEAT.

BY J. R. GOODWIN, OF FRANKLIN COUNTY.

There is no important crop produced by the citizen of Indiana so suggestive of fears and so suspending of hope, from seed time till harvest, as the wheat crop. Once secured, it always finds a ready, and, if the yield has been good, a remunerative market; yet so often injured or destroyed by enemies from all sides, that the laborer cannot, until harvest is "home," unmix his hopes and fears. Its value, however, demands inquiry into the best mode of cultivation, and, aside from its mere cultivation, the means of securing it from its destroyers.

It would be no difficult task to produce a crop of wheat upon a piece of land in every respect fitted for its production, in the quality of soil, situation, and exemption from all wheat enemies. Such a soil, however, exists nowhere; hence it becomes the object of study for the agriculturist to know how far his soil is fertile for wheat, and how that fertility may be maintained or improved, and how the crop, which upon a part of the soil would be good, may be secured from outside evils.

Indiana possesses a soil which, in essential elements, is admirably adapted to wheat growing. This has been denied. A sprightly writer of some influence, somewhat towards sunrise, has said of the entire west: "Wheat is the most precarious crop in the west, and altogether unsafe for the farmer to rely on. Grazing is likely to engage the farmer of the west." That there have been grounds for such declarations none will dare deny, for the wheat crop often fails in the west. Yet the fact that it fails oftener these years than in the earlier history of wheat growing in the State, assures us that the cause *may be* more in careless culture than in the soil itself.

The objector may say that, with the same kind of culture upon the same soil, failures are more frequent than formerly; hence the soil is ill adapted to the

production of this crop. The writer is acquainted with some farmers who have almost fallen out with their farms because they will not, as formerly, produce a rich harvest after only a careless seeding, and after fall pasturing his sheep and furnishing the cows and calves a good start in the spring. A generation of such men once made bankrupt large portions of the eastern States, cried "poor land," and moved west, leaving their poor lands to be recruited by scientific labor, and to again reward the laborer fully for his applications of manures and rational rotation of crops. The same process has begun in Indiana; many farms have been largely impoverished by high cultivation; the products have been sold and conveyed away; while the manures that have been *unavoidably* made have been left to wash away and enrich the deposits on the great Mississippi.

These things do not prove the ill adaptation of our soils to the production of wheat; they only prove that the virgin richness of the soil may be reduced. The soil, like the citizen, requires a return for the yield it gives—a compensation in the form of fertilizers, and careful culture for value received, by the farmer, of produce. On the contrary, some whose lots have fallen on better soil than others, and who have produced many good crops of wheat successively, have believed that wheat did not exhaust the wealth of the soil, but that land that was adapted to the production of one crop would continue to produce unlimitedly. Though the same field does sometimes produce many successive crops of wheat, all equally good, the fact only established that that field was rich in the essential ingredients of a crop of wheat, and not that the crop did not diminish its capacity to produce.

The great essential in the production of a crop of wheat, or any grain, is, that the soil which is to produce it contains the ingredients necessary to produce, in perfection, the crop intended; and should it be required that there be a continuation of the same production, the elements of that produce must be furnished to the soil as they become exhausted.

Here a difficulty presents itself. Must the farmer, as some extreme theorists teach, go to his field, scoop up a tin pan full of soil, and subject it to a careful and laborious chemical analysis, to ascertain in what it abounds, and in what it is deficient, before he proceeds to make a crop? The whole field would rather be the writer's laboratory, and a practical acquaintance with the nature of the soil his guide.

I repeat it, however, that Indiana has a wheat producing soil. Thaer, and Petzholdt, and Leibig, and Lee, all unite in the assertion that argillaceous (clay) soils are best adapted to wheat. Thaer remarks that "The greater proportion of clay a soil contains, and the less proportion of sand, the more it is qualified for the production of wheat. If land containing but little sand has fifteen parts in a hundred of lime, it may be considered as good wheat land." Again: "Argillaceous soils, abounding in humus, and of a blackish brown hue, are those of all others which bear the richest crops of wheat."

Speaking generally, the soil of Indiana is an argillaceous soil, and, in its virgin state, abounds in humus, or what is more commonly known as vegetable mould. From the highest authority, therefore, as quoted above, it is well adapted to wheat production.

It would by no means be desirable that one piece of land should be continually required to produce one kind of grain, as for instance wheat. There are too large

demands for all kinds of farm produce to justify the attempt. Yet this might be done successfully. If this could be done, and the same piece of land be made to produce successfully, year after year, a good crop of wheat, by applying the proper ingredients to supply all demands for the production of the crop, then we would certainly be able the more easily to produce good crops, assisted by proper rotations. I will consider, then, the extreme case of a perpetual crop without diminishing the adaptation of the soil to perpetually produce.

By reference to any work on scientific agriculture, it will be seen that the abounding chemical constituents of wheat, both of the straw and grain, are the salts of potash, earthy phosphates, and silica; the two former abound in the grain, the latter in the straw. Now, to produce a constant succession of a crop of wheat, it becomes necessary to supply these essential ingredients as they become exhausted. The straw carries away a large portion of the silica of the soil, also considerable of the salts of potash. Where shall we obtain a supply to replenish? From the consumption of the straw. Let cattle be carefully fed and littered therewith and the very elements we want are at hand. The silica which enters so largely into the composition of the straw and chaff is not at all demanded by the animal economy; hence it is rejected, and easily returns to refertilize the soil. It may be safely calculated that if all the straw and chaff be carefully turned into manure, and returned to the field year after year, there would be an ample supply of silica, taking into the account the amount furnished yearly by the solution of silica in the soil by the action of the atmosphere. Besides this supply of silica, the dung of the animals fed as above would furnish a large supply of the salts of lime, magnesia, and potash.

Should a weak, soft straw indicate that the farmer had not returned as much silica (which is the great essential to a good straw) as the soil previously contained, he must cast about to supply the deficiency. The manure from oats straw furnishes a supply equally as good as that of wheat. Potato tops thrown in with decaying straw, or with straw which the cattle are tramping to manure, would add largely to the supply of this great essential.

But the grain is carried away entirely and the soil thus robbed of all which was required to produce it. The great drain on this account is the phosphates, and these, not entering very largely in the composition of the straw, are not returned in the manure produced by the same. The bones of animals are rich in phosphate of lime; hence the economy of saving and applying as manure all bones that can be obtained. An essay on manures will give directions how this can be done.

Could we obtain guano we would, in that article, have at once phosphates furnished for our wheat crops. Hair, old wool, and woolen rags also furnish us a considerable supply; hence the necessity of casting them all in the manure pit.

To sum up a little: A constant succession of wheat crops may be produced upon the same field by returning to it the manure made by feeding down with cattle all the straw and chaff produced thereon, with the addition of burnt bones, hair, woolen wasting, &c., as they occur on the farm.

The above is argued on the presumption that a constant produce of wheat is required from the same field. Let the producer be governed by the necessity that may exist between this extreme and the other, where the land is but occasionally required to produce wheat.

Wheat, in our State, is sown upon lands after every conceivable manner of preparation. It is fallowed, stubbled in, and put in with standing corn. A good crop is sometimes produced, upon fair soil, each way; and on the other hand failures follow, sometimes, every mode of seeding. The question arises, which is the best way? or, which manner of seeding, other things being equal, will most uniformly bring a good crop? Most assuredly the fallow. This is upon the presumption that the lands have been worn; for if a soil is rich in the essential ingredients of a crop, it matters not how often wheat may succeed wheat, until there is an exhaustion.

A difference in soils, or a difference in the condition of soils that have been originally the same, require a corresponding different process of preparation for a crop of wheat. In "Chaplet's Manual" the following very sensible remarks touching this point are found:

"To lay down general rules for the regular rotation of various crops, without regard to the differences in various soils, would lead to errors tending to bring rotation into disrepute. Every kind of soil requires a particular system of rotation, and every farmer must arrange his own system according to the especial knowledge of the nature and composition of the soil he cultivates."

The same may be said of fallowing for wheat. If the land has been previously much exhausted, wheat should be put upon a manured fallow, either of pasture or clover. If, however, the land has been in good tilth, a crop of corn may succeed a manured clover sod and the wheat fallowed the succeeding summer. Better crops succeed the latter mode than any other, because the plowing required in the cultivation of the corn presents so much of the soil to the influence of the atmosphere that it is thereby better fitted to produce wheat; also, the corn stalks being permitted to remain on the ground and decay there, that the silica contained therein is in readiness to produce the crop of wheat.

Fallow, of whatever crop it may be, should be plowed early in the season, say in May, after corn planting, that the soil may again be presented to the atmospheric influence. At seeding time the ground must be again well plowed, not less than six inches deep, and thoroughly pulverized. It is a great desideratum that the soil be entirely pulverized, otherwise we require the portion that is pulverized to produce all that every particle of the soil in the field should assist in—a part is in service while a part is locked up in utter uselessness. A clod is of no more service while it remains a clod than a stone of the same size.

The ground being thus prepared, it is now ready for the seed. Much depends upon the careful selection of seed. It should be obtained free from *all* filth, such as chess, cockle, &c.; also, free from bad or defective grains. If chess, or cheat, is not sown with the wheat, or is not already in the ground, there is no danger of the wheat *turning to cheat*, no more than there is danger that it will turn to any other grass—for cheat is a variety of grass which will produce itself as often as sown, and will never be produced from the seed of wheat. The writer once had a good supply of cats, which, while they existed, kept the premises rid of rats, but by accident they were destroyed, whereupon a host of rats appeared, but he never argued that the cats turned to rats, or that rats were a degenerate race of cats. The same with wheat. If by any accident the wheat is destroyed, the seeds of whatever filth may be in the ground will spring up, whether it chance to be of

chess or any other grass, or weeds. The meadow foxtail grass (*Alopecuris pratensis*), occupies such grounds oftener than cheat.

In selecting wheat for seed regard must be had for the variety that by experience has proved most successful. I have information from almost every section of the State, and find that the Mediterranean is the variety most in favor. It is almost the only raised in the southeastern portion of the State. The White Genesee would be much preferred if it could be produced with as much certainty as the Mediterranean; but it is too late in ripening to succeed well.

The Mediterranean, though inferior in some respects, is the variety most exempt of all others from the attack of the fly on the one hand and the rust on the other. Its immunity from the fly has been attributed to the hardness of its straw. This, however, cannot be correct. It is not likely that the straw of this or any other variety of wheat can be so hard that the fly cannot work upon it in its tender state in autumn. Nor is its straw harder than the straw of many other varieties which are more liable to destruction by the fly. A more rational theory for the exemption of this variety from the effects of the fly is based upon the position of the young leaf. It is a well established fact that the female of the fly lays its eggs upon the young leaves of the wheat; the worm, which is hatched in a few days, descends to the lower part of the leaf at its junction with the stem; here they become changed into grubs and perform their destructive ravages. Now it will be observed that the young Mediterranean wheat presents a different appearance from all other varieties. The leaf, as it shoots out from the stem, takes a less erect position than any other variety: so much does it seem to lie out, resting upon the ground, that the general appearance of the field is more that of barley than of any other wheat. This being the case, suppose the fly deposits the egg upon the young leaf, the chances of its getting to the stem, by the assistance of rains, are by far less than if the leaves stood erect. Once thrown off from the leaf its destruction is certain. This is theory, yet a more rational one than to suppose that a stem so young is too hard for the grub to eat; when at the same time there is no hardness peculiar to the Mediterranean straw only as the mind conceives it to support a theory.

Having selected the seed, the next question is how shall it be put in the prepared ground? There are two ways: the old mode of sowing broadcast and the new one of drilling. If the seed is to be broadcast it should be sown after the plow while the ground is yet rough; then harrow until the surface is well pulverized and levelled. If there are clods which the harrow will not make sufficiently fine, the roller should be used.

If, however, the drill is to be used, the work of preparation must precede the drill. It is better, generally, that the ground have two good harrowings and be rolled. The farmer must, however, be governed by the condition of the land in preparing it for the drill, only being governed by a complete destruction of clods before he starts the drill. A clod in this case does double mischief—it prevents the even deposit of the seed by the drill tooth, as well as the common mischief of not assisting in the production of the crop. Six pecks of seed are required in a broadcast crop, and five pecks for a drilled crop. This difference arises from the fact that, in drilling, the seed is all put in a position to grow—while otherwise sown, at least a peck to the acre is left either not covered at all, or so slightly that the most favorable weather cannot give it success.

I am aware that the utility of drilling is yet doubted by some wheat growers. A very intelligent farmer of Franklin county, last year, made the experiment of sowing one part of a field broadcast and the other by the drill, every other condition being equal. The broadcast made a tolerably good crop, while the part drilled in failed on account of the damage done by the fly. He thinks that the cause of the fly doing more damage to the drilled wheat is (supposing the theory above given for the immunity of the Mediterranean wheat from the fly to be correct,) because the drill causes the leaves at first to grow more erect, by being left in a furrow; hence the egg of the fly is much more liable to be carried, by rains, into the stem.

Drilled wheat may be more liable to destruction by the fly than broadcast; yet this fact needs more evidence to establish it than has been produced. The two great advantages of drilling are protection from winter killing and economizing seed. That these are accomplished no one denies.

The crop thus being in the ground is more liable to injury from various enemies than any other crop produced by the Indiana farmer.

The first is the fly. Against its ravages, it must be confessed, no specific remedy has been found. Late sowing is in a measure preventive; yet the remedy is too often worse than the disease. Late sown wheat does not produce a good head in general, and the danger of being entirely destroyed by the rust gives the farmer no encouragement to hazzard it as a remedy for the fly. The best manner of protection is in sowing the variety less liable to its ravages.

The next and great destroyer of the wheat crop is winter killing. It is not the severity of the winter that kills the wheat. Good crops frequently succeed very severe winters; especially if the ground has been covered with snow. Wheat will grow under snow, and seeds which had been buried but for a short time will spring up under a good covering of snow.

When the snow and frosts are disappearing is a period of danger. The seed is liable then to be drowned by collections of water where the farmer would not expect them—his ditches, upon which he relies for carrying off the water, may be frozen up, and, as the warmth operates sooner upon the snow than upon the frozen earth, they are useless. Promptness is required to relieve this difficulty.

A thaw is still more injurious to wheat when it comes on slowly and is accompanied with alternations of frost. When there is sunshine during the day and frost during the night, the thawed superfices of the soil become saturated with water, which is unable to penetrate through the inferior stratum, and still continues to be hardened by the frost; this water freezes during the night, and, in doing so, raises up the superficial layer of earth subjected to its influence, and with it the plants. During the day the earth thaws again and falls back to its original position, leaving the plants, which are lighter, to remain naked on the surface. For several nights and days the same thing is repeated, until even the roots are sometimes broken where their lower extremities are tightly fixed in the frozen earth. There is a partial remedy for this evil.

1. Let the ground that has not a sandy or gravelly subsoil be well drained, so that the water, which is surplus to the prosperity of the plants, will be carried off.

2. Let the wheat be put in with the drill. This leaves the plants to grow in a furrow, which is filled by the alternate freezing and thawing, and thereby prevents

the roots from being laid bare. Experience has fully proved the excellence of the drill in this respect.

In the spring, when on a very fertile soil, the wheat plants suddenly shoot up and put forth vigorous leaves and lateral shoots, there is every reason to believe that the growth will become too luxuriant and the grain will lodge. The best way to avoid this evil is by pasturing with sheep. When this is done a great number of sheep should be put on at once and suffered to crop the too luxuriant growth hastily and be dismissed. The necessity, however, of spring pasturing is not very frequent, and should not be resorted to only under extreme necessity.

How poor the economy of pasturing a few calves on a wheat crop, to "give them a start," in the spring! It may not hurt the calves, but it does the wheat, and the owner's reputation for a good husbandman, if he had any.

Rust is the last and greatest enemy of the growing wheat. In 1849 this disease attacked the wheat and destroyed it, most alarmingly, in all the west. The earliest varieties, only as they were growing in the most favorable localities, escaped uninjured. The cause of this disease is yet hidden from all research on the subject. The proximate cause is the bursting of the stem and consequently the issuing of the sap, like a hæmorrhage, which, drying on the stem, produces the "rust." But what is the cause of this bursting of the stem? It has been attributed to sudden changes of the weather—especially to the influence of a hot sun succeeding a shower of rain. All, however, concerning the remote or exciting cause of rust in wheat is theory—vague, unestablished theory. It is the opinion of the writer that the cause is purely atmospheric.

By reference to analysis of the wheat when in blossom, and again when mature, it is found that great and important differences exist in the proportion of chemical constituents. Now, the atmosphere is the principal source of carbonic acid to vegetables, and also of other gasses. It is therefore rational to suppose that a change in the relative proportion of the gasses, essential to the maturity of the wheat crop, may produce all the effects known as the rust; especially when that change occurs at so critical a time as it is between the blossoming and the maturity of the crop. The only remedy yet found for the rust is only a preventive, not a cure. Varieties must be sown which will ripen before the time for rusting. Of all other varieties the Mediterranean stands the superior.

Of the time and manner of harvesting wheat little need be said. The time for cutting it is as soon as the farina is formed. This is when it has passed from the milky state and yet has not hardened. If left longer the grain does not exhibit as fair an appearance, neither does it make as white flour; besides, if left longer, there is more waste of the grain, especially if the weather be dry and windy.

Reaping machines have recently come to the aid of the farmer in harvesting his grain. Their use is no longer an uncertain experiment. It is no small advantage that horse labor can be applied successfully in time of harvest—that by the aid of four horses a man may place in gavels fifteen acres per day; and that man too may be one who is not able to *make a hand* with the cradle.

Lastly, the importance of the wheat crop to the citizen of Indiana, both to the producer as a source of profit, and to the consumer as a necessary ingredient in the "staff of life," demands more attention than it has hitherto received. Taking into account, too, that it is subject to so many casualties, from germination to

maturity, the field for study and observation opens to the scientific farmer with rare enticements to enter and act. There is scarcely one step in the whole process of raising a crop of wheat upon which all practical farmers will agree. I am aware that the views contained in the foregoing essay will not meet the approval, throughout, of all my fellow farmers of Indiana; yet they are presented with an honest desire that they may aid somewhat in the investigations of the day. Facts have been stated as facts, and theories and opinions merely as such.

It is not intended to be represented that the wheat crop is the most important one to the farmer. It is not the case. Corn yields a much greater revenue to the State, in itself and in its produce of pork, than wheat; yet its cultivation must be alternated with other grains on most soils, and amongst these grains wheat occupies the first rank in value.

It is intended to be represented that wheat occupies no second rank in furnishing a field for study and investigation as to how it may best be produced and secured from the ravages of its enemies.

ON THE IRISH POTATO.

BY C. M. WALKER, OF MARION COUNTY.

The effects of domesticating plants, and the beneficial results of careful and persevering culture, are nowhere so fully illustrated as in the case of the Irish potato. No stronger argument could be adduced in favor of experimental agriculture, nor better proof be possibly afforded of the fact that nature may sometimes be improved by art, than is found in the history of this vegetable.

Among the many curiosities carried across the ocean by Sir Walter Raleigh, on his return voyage from the New World, in the latter part of the sixteenth century, there was the bitter root of a wild and singular looking plant. This plant was found growing spontaneously upon the plains of South America, and a quantity of the bulbous fruit, which it yielded in considerable abundance, was collected—more for the sake of investigating a new botanical specimen than because it had any good qualities to recommend it. The roots were taken by Sir Walter into Ireland, where a quantity of them were planted, and, with little care or attention, produced a large increase; but so nauseous and bitter were they that the experiment of cultivating them any further was about to be abandoned, when the reflection that there might thus, perhaps, be obtained a coarse food for cattle, induced some persons to make use of them for seed, and to bestow some culture upon the newly discovered plant. Suffice it to say, that after a series of experiments and a long course of cultivation, much to the surprise of all who had been acquainted with the character of the original supply, a root was produced which

was found to possess some pleasant qualities, and it finally came to be used as an article of human diet.

As the potato was still further improved by the appliances of scientific culture, it began to be considered a table delicacy, and was sought for as such. It was well nigh a hundred years, however, after its first introduction into Ireland, before it was thought fit for man to eat; and a much longer period elapsed, after its virtues were discovered, before it received more than a limited garden cultivation, or excited anything like a general interest. The public were slow to find out its good qualities, and it was not until near the middle of the eighteenth century that it became widely known and acquired that general popularity which it has ever since maintained. From England and Ireland it soon spread to the continent, where it was speedily adopted into the field culture of all those countries at all suited for its production. The masses of the people learned to prize it more and more highly as they became better acquainted with it, and there is, at this day, no vegetable which they could not far better afford to be deprived of than the Irish potato. Indeed, considered as an article of food, both for man and beast, it ranks among our most useful agricultural products of any kind. As used by the inhabitants of those countries where it is extensively cultivated, it forms not only one of the most pleasant and desirable, but by far the cheapest and most nourishing species of vegetable food. It adaptation, in a great degree, to diverse soils and nearly every climate; the ease with which, in the most populous parts of the globe, it may be produced, and the excellance and abundance of the crop which *good cultivation* never fails to secure, certainly entitle the potato, above all other esculent roots, to hold a position of usefulness and importance along with the cereal grains. Since the beginning of the present century these valuable qualities of the potato have been very generally recognized in both hemispheres, and the cultivation of it is an object of increasing importance in the farming interest of every nation.

We propose devoting a short time to the consideration of the character and varieties of the potato, the soil best adapted for its production, together with the best mode of cultivation, and other matters of particular interest connected with the plant: And first as to the

CHARACTER AND VARIETIES OF THE POTATO.

There is no essential difference in the chemical composition of the numerous sorts used—all of them containing the same elements in nearly the same proportions. It is generally known that water enters largely into the formation of this vegetable, but few, perhaps, are aware that it constitutes considerably more than half of its weight. Careful chemical analyses have shown that 1000 grains of potato contain the following substances in very nearly these proportions:

Of water, - - - - - - - - -	600
Of soluble mucilage, - - - -	200
Of pure starch, - - - - - -	100
Of vegetable fiber, - - - - -	100
	1000

From the quantity of water appropriated by the plant, it is evident that good crops cannot be obtained unless a sufficiency of moisture is afforded, either by the nature of the soil, always damp, or by timely rains.

There is almost an endless variety of potatoes, and the number can be indefinitely increased by plucking the balls or seed pods, and raising from the seed. The proper mode of raising from the seed is this: Let a few large, ripe apples be taken from healthy vines and carefully preserved in dry sand, or other safe manner, during the winter. The seed should be taken out early in the spring and placed either in a hot-bed and subsequently transplanted to open ground, or else be at once planted in rich, sheltered garden ground. These seeds will produce tubers of which the largest should be selected and planted the next year. In this way, in the course of three years, new and choice varieties may be obtained from the potato-apple. It is desirable that this manner of restoring the vitality should be sometimes practiced, as the potato becomes feeble and loses much of its nutriment as well as vitality from being long cultivated in the same place, or during successive years from the same seed. This plan is frequently adopted in Great Britain, where their varieties are quite different and much more extensive than those commonly cultivated in the United States. Those best adapted to our soil and latitude are generally known as the *Blue Skin*, the *Pink Eye*, the *Shaker Blues*, and the "*Meshanic*." Of these, the Pink Eye is perhaps as good a variety as any; and it certainly, so far as our knowledge extends, produces a better yield in this section of country than any other. The Meshanic, or, as it is called in the East, the Mercer potato, is a very fine variety and yields pretty well, but it is not so well adapted to our soil as some others. Yet though there may, strictly speaking, be some preference as to the varieties above named, any of them will yield a remunerative crop of good potatoes for fair and proper cultivation.

SOIL.

Neither a wet, clayey soil, nor a heavy, rich loam is very well suited for growing potatoes. It requires a quality of soil somewhere between these two extremes, and further than that is not very essential. It is well known that Ireland, which country produces the finest potatoes and in great abundance, has a moist, humid climate, with a fresh, damp but rather light soil It is said that the reclaimed bogs and peat land of Ireland, when thoroughly drained, produce large crops; but it could hardly be inferred hence that the swamp lands of Indiana, even after they are reclaimed, would be equally favorable to its growth. For the wet lands of Ireland contain a much greater amount of silica (an element essential to the growth of such roots), and by no means the proportion of heavy loam that is found in our swamp lands. In a soil of this character, i. e. too wet and heavy, the potato is almost sure to become sickly and produce watery tubers, inflicted with worms or other vermin. It is by no means those counties that produce the most corn which raise the most potatoes. And, though no large portion of the State is at all incapacitated through the nature of the soil from yielding good and paying crops, yet the sandy or slightly gravelly upper regions of Indiana are best adapted by nature for their growth. Newly grubbed timber land is admirable, and the planting of potatoes is as good a way as can be found of bringing it under cultivation. In

conclusion, we would advise dry or high rather than low and wet land; and a preference should always be shown for sandy or gravelly over a too clayey soil or a heavy loam.

TIME FOR PLANTING.

The proper time for planting in this latitude is about the last week in March or the first in April; the state of the season or prospect of the weather determining the time more exactly. There is a very general belief among farmers that potatoes, planted in the last quarter, or "in the *dark*" of the moon, will do better, other things being equal, than those planted in the new moon, or during the first quarter. It is undoubtedly the fact that those planted during the full of the moon will usually take best root; but the reason is to be found not of course in the direct influence of the moon, but in this well known circumstance, viz: that in the spring season a "change of moon" is almost always accompanied by copious, growing rains, and hence potatoes planted just before a new moon stand a much better chance of receiving friendly showers than those planted after—the latter, perhaps, having to lie in the dry ground for many days without the benefit of the invigorating rains which may reasonably be looked for at the moon's change. Hence the popular belief, though in most instances arising from mere superstition, is nevertheles sustained by facts and philosophy. As a general rule, we would advise to plant between the 20th of March and the 5th of April; and our opinion is that those generally known as early crops invariably produce the best yields. Repeated experiments have been made to test the question whether *whole* tubers or *cuts* may be used most successfully in planting, but no certain conclusion has been arrived at.

Mr. Stowe, of Ashtabula county, Ohio, says: "Some five years since I planted eight rows of potatoes in my garden, fourteen hills in a row; the first two rows I selected the largest potatoes and planted them whole; second two rows, large ones, cut into four pieces; third two rows, small ones and two or three in a hill; fourth two rows, small ones cut in two pieces, same number in a hill. They all had equal attention. Now for the result: 1st two rows, 28 hills, yielded 3½ bushels; 2d two rows, 28 hills, yielded 3 bushels; 3d two rows, 28 hills, yielded 2½ bushels; 4th two rows, 28 hills, yielded 2 bushels. From this and other experiments I have come to the conclusion that *cutting* seed potatoes is *not a wise operation.*"

The "Practical Farmer," a very reliable agricultural paper, says: "Repeated experiments with seed potatoes, large and small, cut and uncut, although not entirely uniform in their results, have been largely in favor of large or medium size planted *whole.*" Others again invariably plant small potatoes, while many are in favor of cutting. On the whole we think that large, sound whole tubers are decidedly preferable for seed; but, if cut at all, let them be *large potatoes*, and cut so as to leave not less than two or three eyes on each piece. If this practice were followed we should have less complaint of small and defective potatoes.

MANNER OF PLANTING AND CULTURE.

Deep and thorough tillage is everything—absolutely essential—to the success of potatoes. It is a crop which more than any other requires careful preparation of

the soil for its reception and good subsequent culture: these scarcely ever fail to secure a fine yield.

The ground must be thoroughly plowed and harrowed smooth, mixing well the manure, if any has been previously used, and, at all events, giving the ground a good, deep loosening.

A very good mode of planting them is, after the ground is prepared, to train lines, say three feet apart, across the field; then, with a spade or hoe, strike holes five or six inches deep at intervals of twenty inches. In this way a boy, dropping, can attend very well to three lines, and every motion of the hoe or spade made to do double duty, as the dirt taken up each time may be thrown down to cover the last hole. Other methods may be adopted, but we advise farmers not to avoid this or other suggestions, which may in themselves be valuable, simply because they involve some trouble or labor. If plowing furrows is deemed preferable to striking the holes with a spade, they should still be run about three feet apart and the potato not covered more than six inches at the outside. After the potatoes are planted, a good rolling is useful to level the ground and fill up the small hollows. At the first appearance of the plant above ground, the soil should be thoroughly loosened up by use of the square harrow; or the plow may be used at this time, throwing up the dirt around or even over the young plant. The plow may be used once more to advantage, but it should be done before blooming if possible. Early loosening of the ground in this way tends to hasten the growth of the potato, and at the same time to check the weeds. After this, however, the use of the plow is decidedly objectionable, as is also the practice of "hilling up" the potatoes, except in very wet ground. This "hilling up" forms deep valleys between the vines, and, the hills further tending to throw off the rains from the roots of the potato, the crop is liable to fail in its early growth for want of sufficient water. The *flat* mode of culture, or use of the cultivator, the two back teeth taken out, is altogether preferable. Indeed any other culture is, we think, in many cases positively injurious. After the tubers have fairly commenced forming, they should not be disturbed any further by deep cultivation. The cultivator may be run through lightly, however, or the hoe may be used to advantage soon after the vines have begun to fall.

An admirable assistant to the growth of potatoes is a *good sod*. Indeed we consider a tough clover or timothy sod the very best ground for them. Let the sod be turned over right upon the potato, and it acts both as a covering and a manure during the whole season: it gathers and retains moisture, and from its proximity it serves continually as a fine fertilizer.

For manure, guano is very extensively and successfully used in the East, where it is easily obtained. Lime may be used to advantage unless the ground already contains a sufficient quantity, and wood ashes is an excellent and always safe manure. Three or four bushels of salt to the acre may be scattered, and will mostly always have a good effect in fertilizing and keeping the land moist. Swamp muck, chip manure, and long straw, or stable manure, are all good and may be used bountifully. Common stable manure, the easiest to be obtained, is perhaps about as efficient as any other.

DISEASES, THEIR CAUSE AND REMEDY.

It has only been within the past ten years that the potato crop has suffered much or generally from disease. Within that time there have been short crops in many portions of the United States, and in some other countries, where it is extensively cultivated, the disease has caused total and repeated failures.

The great importance of the potato as an esculent, and the apparent tendency of the disease to spread and become more virulent, has induced hundreds of scientific men to devote their attention to discovering its cause, or at least arresting its ravages, while almost every farmer in the land has made his own experiments and arrived at his own conclusions. These observations, however, have been far from uniform in their tendencies, and, after all the investigations, no satisfactory or definite results have been produced.

The disease to which potatoes are chiefly subject, and that which proves most disastrous to the crop, is known in this country as the *rot*, and is very nearly allied to that which in England is called the *curl*. The presence of the disease may be detected first by the leaves of the stem becoming shriveled, and, on examination, the tubers will be found to be affected with *dark spots*, which spread and soon destroy the whole potato. The disease sometimes spreads through the entire body of the potato and at others I have known it to be confined to the outer coating or shell, as it were, but still completely ruining the potato for use.

As remarked above, the almost numberless experiments made by intelligent men, in our own and other countries, for ferreting out the origin and cure of this disease, have been as yet, in a great measure, fruitless. With singular diversity of opinion they have attributed it to the operations of an *insect*; to the presence of a *malaria* in the atmosphere especially fatal to this plant; to the use of unsound and unhealthy seed, and to the fact that the potato is worn out and the particular variety used has become, as it were, *tired of the soil*. This last point is, we think, worthy of particular attention, by the way, as we have no doubt that in it exists one secret of raising good, sound potatoes. Their natural tendency, like that of other plants, is to degenerate, when planted for any considerable time in the same soil. A change of variety is as necessary to preserve the excellence and vitality of the potato as a crossing of breed is to improve the blood of animals; and, in the case of the vegetable, the seed should be changed at least as often as every five or six years. It is certainly true that the debility and want of vitality caused in the potato by the long continued planting of the same varieties, in the same soil, peculiarly fit it to be the prey of disease in whatever form it may approach.

Overlooking all the philosophical solutions of the mystery, such as the presence of a minute animalcule, or a miasma in the atmosphere, we are inclined to take a more *practical* view of the case and ascribe the disease mainly to the cause mentioned above, i. e., planting the same variety in the same soil too great a length of time, and to sudden or extreme changes of weather. Taking this view of the question, and with reference to the changes of weather, the disease may be distinguished as the *dry rot* and the *wet rot*. The first, or "dry rot," is caused by a long continued and parching drouth, during which the root fails to obtain moisture enough for its healthy existence, and so becomes bitter and diseased. The last

named, or "wet rot," is caused by ill-timed or excessive rains, followed perhaps by a spell of hot, dry weather. Singular though it may appear, the same disease often follows as a result from these apparently different causes. Yet as the tendency of another's observations or his means of knowledge may not have been the same, so the conclusions at which he arrives may be entirely different; and we are obliged to confess that the *cause* of the disease has never been *satisfactorily* explained.

Though the origin of the disease has not been certainly ascertained, yet many palliatives, or *partial cures* for it, have come out of the anxious investigations and experiments. There is a decided weight of preference in favor of planting on sod land, or old pastures that have long been in grass. Secondly, if animal manure is used, none but the most *thoroughly rotted* should be applied to the crop, and it should be evenly spread and well mixed. The use of lime and charcoal has also been supposed by many to be efficient as a preventive. These may be applied separately, at the rate of a gill or thereabout to each hill—or they may be mixed with the manure at the rate of say five bushels of charcoal and one or two of lime to a common two-horse wagon load of manure, which should then be well spread. We decidedly prefer the latter method as being quite as good and less trouble.

We recently saw an extract in which it was stated that a German professor had, as he supposed, discovered a remedy for the potato rot, and that it consisted in thoroughly *drying the seed* by leaving them, nearly a month before planting in a highly heated room. We cannot vouch for the truth of this theory, but would suggest to some of our farmer friends, who could do so conveniently, that it might be worth while to make the experiment.

In conclusion, the only directions we can give for avoiding the disease, that are perfectly reliable and uniform in their application, are, to select fair, sound, healthy, and fully ripe tubers for seed, whether planted whole or cut; let them be put into good soil at the proper season, well manured, and with perhaps a sprinkling of charcoal and lime; and when you have given them a careful and judicious culture, you have done *all* probably that *can* be done to prevent the potato rot.

GENERAL REMARKS.

Finally, we would urge upon our farmers the importance of the potato as a field crop, and the propriety of giving to the subject a more general and careful attention. It is true that this latitude is not so favorable for raising potatoes as northern Illinois, Wisconsin, or some other parts of the country, but Indiana is by no means unfitted by nature for their successful cultivation. Some of the New England States, from the fact that the plant is much more highly valued and receives far greater attention there than among us, produce vastly larger crops, though greatly inferior to Indiana in general agricultural resources. As an indication of the infinitely greater importance attached to the crop in the eastern than in the Western States, we would cite the following facts:

Indiana has improved in farms, 5,046,543 acres; New Jersey has improved in farms, 1,767,991 acres; showing an excess of improved land greatly in favor of the former State. Yet, for the year ending June 1, 1850, Indiana produced 2,083,337 bushels of potatoes, while New Jersey produced 3,207,236 bushels, or an

excess, in round numbers, of more than 1,000,000 bushels in favor of the little State of New Jersey.

As a further interesting indication of the same fact, viz: the much higher value attached to this crop in the East than with us, we give the corresponding figures of Illinois and New Hampshire: Illinois has improved in farms 5,039,545 acres; New Hampshire has improved in farms 2,251,458. For the year ending June 1, 1850, Illinois produced of potatoes 2,514,861 bushels; New Hampshire produced 4,304,919 bushels; again showing a preponderance in favor of the comparatively sterile New England State of nearly 2,000,000 bushels.

It is evident from these facts that the potato is much more highly regarded as a field crop in the East than here, and that it receives a far greater degree of attention. Indeed there is every reason why it should be extensively cultivated in every part of the country. At an expense of less than $10 per acre, and with proper culture, the farmer may produce 150 or 200 bushels, which, even at the extremely low price of 25 cents, is as profitable a crop as he can put in. And when we consider that the usual price is nearly if not quite twice this amount, it is evident that the crop is one which may be made, above all others, *to pay*. Some have supposed that the crop impoverished the ground. This a great mistake—no crop leaves the soil in a better state for future use, and it is by no means so impoverishing or exhausting upon land as corn. Finally, in consideration of its being a cheap, healthful, and nutritious article of food, certain to produce a fair yield in return for careful cultivation, and always sure of finding a ready and remunerative market, I think there is no field crop at present more worthy of general introduction and attention among us than the Irish potato.

ON GRASSES.

BY DR. R. T. BROWN, OF MONTGOMERY COUNTY.

In the cultivation of grass, as a farm product, two objects divide the attention of the farmer. He either cultivates his grass crop for summer pasturage, or he expects to transform it into hay and use it for winter food for his stock, or put it into the market as an article of trade. These objects vary the grass culture, both in the variety of grass to be selected and the mode of cultivation, general treatment, &c. This very natural subdivision of the subject will be adopted in this essay. But before we proceed to the examination of the subject proper, let us glance at the importance of the grass culture in Indiana. There is no crop raised in this country which approaches so near a spontaneous, uncultivated yield as the grass crop, and yet but few field crops pay a larger profit than this. It is very difficult to estimate, with even an approximation to certainty, the real value of the grass crop of the United States. I know of no mode of estimating the value per

acre of pasture lands; and if we had a scale of valuation, the almost infinite varieties of pastures, from the most carefully prepared and kept to the woodland pasture, where native and cultivated varieties are left alike to struggle for a bare existence with the shade above and the weeds beneath, would render the application of such a scale very difficult if not impossible.

But of the hay crop we have the census statistics, which may be received at least as an approximation to accuracy. On examining the last census I doubt not but many will be astonished to learn that the hay crop of the United States is of more value than the whole crop of cotton, tobacco, and rice combined. Presenting this subject in a tabular view we have the following for the crop of 1849: Cotton, 2,500,000 bales, or 1,000,000,000 pounds, which, at 7 cents per pound, is $70,000,000. Tobacco, 200,000,000 pounds, at 8 cents per pound, $16,000,000. Rice, 215,000,000 pounds, at 4 cents per pound, $8,600,000. Total, $94,600,000. Hay, in the same year, 13,000,000 tuns, at $8 per tun, $104,000,000! Leaving a balance of $9,400,000 in favor of the grass crop over the combined staple products of half the States of this nation. Of this hay more than one-half is produced by four States, to wit, New York, Ohio, Indiana, and Illinois; and yet no State has made hay even a primary object of cultivation, much less an exclusive crop. Indeed very little care is bestowed upon the meadow. With perhaps a few loads of stable or barn-yard manure, scattered in the winter or spring, no further attention is paid to it until it is ready for the sythe. And as a rule but too general in this State, the meadow is expected to wait until the grain harvest is closed, and the grass is then cut without reference to its condition, which would generally have demanded that operation some weeks before. But the value of hay produced does not certainly exceed the value of the grass crop appropriated to pasturage. If we regard them as equal, we may then estimate the grass crop of the United States at TWO HUNDRED AND EIGHT MILLIONS OF DOLLARS; or as equivalent to all the other agricultural products excepting wheat and corn. This view of the subject demands that a greater attention should be paid to grass culture in all its departments.

HAY.

Professor Lapham, in his Flora of Wisconsin, gives us thirty-seven species and some seventy varieties of native and introduced grasses now found in that State. Nearly all of these and eight or ten species not included in the Professor's catalogue are found in Indiana, and yet but two are in common use as meadow grass. In England more than two hundred varieties of grass are found in cultivation, most of which are natives of the island. Of these about a dozen species are in common use for meadow purposes. The two species commonly used in this country are the timothy, or as it is called in England "meadow cat's tail," (*Phleum pretensis*), and the red top, or herds grass, (*Agrostis vulgaris*), are both natives of England, and still cultivated in that country, but by no means esteemed the best varieties. Timothy was first introduced into Maryland by Timothy Hanson, whose name it now bears throughout the middle and western States. In New England it is called herds grass, which being the common name of the red-top in the west leads to much confusion, if we fail continually to bear this fact in mind. The principal objection to timothy is that on a strong soil it is too coarse a grass—has too much stalk, with but little blade—it is late in maturing, and the "after-

math," or second crop, is seldom worth saving. On the other hand it has a wide range of adaptations, both of soil and climate, is liable to but few diseases, and is therefore a very sure crop It may be produced on almost any soil except an undrained marsh or a drifting sand; yet a rich loam, with a clay subsoil, is best adapted to it as to most other grasses. It furnishes a very palatable and nutritious hay, and is less injured by rain in harvesting than most other grasses. If suffered to ripen its seed, it is quite as exhausting on the soil as any other variety of grass, but it forms a feeble sod and is easily subdued, when the meadow is to be transformed into a grain field.

THE RED TOP, (*Agrostis vulgaris.*)—Known in England as bent grass, in continental Europe as "*fiorin*," in the middle States of this country as herds grass, and in New England as foul meadow grass. It has a soft straw and produces an abundance of blades. It delights in low, swampy lands, and is admirably adapted to the wet prairies of the northern part of this State. It is less exhausting on the soil than timothy; the straw having a lighter glazing of silicious matter and the ash containing but about five per cent. of potash, while that of timothy contains thirty per cent. But the chief recommendation of the red top is that a heavy crop of it may be produced on ground too wet for other cultivation, which, in the early stages of the settlement of a country, before a system of drainage can be effected, is a consideration of great importance. In its green state it contains at least seventy-five per cent. of water, which renders it difficult to cure, especially if the harvest should be showery. When dried it weighs lightly for its bulk. It contains less nutriment than several other varieties of grass, being very deficient in starch, gum, and sugar. But perhaps the most serious objection to the cultivation of this species of meadow grass is the great difficulty of rooting it out when a change of crop is necessary. This difficulty is not confined to the meadow. Wherever stock fed upon the red top hay is permitted to run, it springs up and is very troublesome, and even the stable manure, where this kind of hay has been fed, will seed the fields in a manner that will require an immense labor to root it out. In Massachusetts there are two varieties cultivated, the one common to this country and a larger and later variety, the *Agrostis stolonifera;* and English works speak of several varieties, none of which, however, seem to have any marked advantage over that in common cultivation here, unless the postponing hay harvest to the first of August should be considered an advantage. If so we shall find it in the Massachusetts variety just alluded to. But all the varieties of this family will bear to stand longer without injury than almost any other grass. Of the English varieties which have been but to a very limited extent introduced into this country, and scarcely at all into the western States, we have

1. THE MEADOW FOX TAIL, (*Alopecuris pratensis.*)—This is a very early grass, maturing itself by the middle of June in the climate of England. It is said to be very productive and exceedingly nutritious, and when once set it forms a very permanent meadow. It is, however, slow in taking root and is very feeble the first year. In England it does not perfect its seed fully, from some cause as yet unexplained. In this country sufficient experiments have not been made to test its properties. If it can survive the summer heat of this climate the first summer I apprehend it would be a valuable addition to our stock of grasses. It is no way

akin to that annual pest of cornfields which bears the name of fox tail in this country.

2. MEADOW FESCUE, (*Festuca pratensis.*)—This grass has a good name among the cattle growers of England. It may be cut in June, and will afford excellent pasture during the summer and autumn without material injury to the succeeding crop. Both the fresh grass and hay are highly nutritious, but the yield is said to be less than the fox-tail. It thrives best on a clay soil, and would probably be well adapted to the summit lands of Indiana.

3. ROUGH STALKED MEADOW GRASS, (*Poa trivialis.*)—This is a fibrous-rooted grass, somewhat resembling the red top, and like it delights in a moist situation, where it produces a heavy crop both of hay and pasture grass. It is preferred by cattle in grazing to any other pasture grass, though Professor Way's analysis would not place it high in the scale of nutrition. A change of climate, however, might change many of its habits, whether for the better or worse can only be determined by experiment.

4. FERTILE MEADOW GRASS, (*Poa fertilis.*)—This is of German origin and was introduced into England by the Duke of Bedford. It is an early grass and is remarkable for its large aftermath. Indeed it sends up successive crops until it is arrested by the approach of winter. It has a creeping root, which lies very superficial, and consequently will not endure pasturing as well as fibrous-rooted varieties. It flourishes on any good soil, preferring, however, a deep, moist loam. I think it would be well adapted to our burr oak lands.

5. SWEET SCENTED VERNAL GRASS, (*Anthoxanthum odoratum.*)—This is perhaps the earliest of English grasses, putting forth its flowers about the middle of April, and continuing to throw up new flower stalks until November. Its chief excellence seems to consist in its ability to endure drouth and retain its freshness. This is the more remarkable as it contains more water than any other grass, and would be supposed to require a corresponding degree of moisture in the soil. This is a great objection to it as a meadow grass. It has been extensively used as a pasture grass in eastern Pennsylvania, where it is much esteemed. Its peculiar odor, from which it derives its name, has been supposed to communicate to the Philadelphia butter its richness of flavor for which it has long been celebrated.

6. RYE GRASS, (*Solium perenna.*)—This is said to be the most universally cultivated grass in England, forming a part of every meadow and pasture. It is adapted to a wide range of soil and climate, is hardy, and matures early, and after having been once cut springs up again in a few weeks and produces a heavy after crop. A variety of this grass called the Italian rye grass is just now the great rage among the fancy farmers of England, and I am happy to learn that the Patent Office has distributed the seed of this variety extensively throughout this country. The English agricultural journals tell almost incredibly tall stories about the productiveness of this grass. They speak of cutting from three to five crops from the same ground in one season, amounting to from fifteen to twenty tuns of product. Query: Do they mean fresh cut grass or cured hay? It is said to exhaust the land almost if not quite equal to grain crops. I hope from the seed introduced we shall be able fully to test its adaptation to our climate and soil.

7. Soft Meadow Grass, (*Holcus lamatus.*)—This is a highly esteemed grass, both for meadow and pasture. The stem is soft and does not rise to a great height, but produces a large amount of blades, which remain green and tender even after the seed is fully ripened. Dr. Stephenson, of Putnam county, brought from England the seed of this grass in 1853. I saw it at midsummer last year, when meadows and pastures were generally scorched and dead from the severe drouth, yet it maintained its freshness but little impaired. I hope it may prove a valuable addition to our stock of grasses.

8. Orchard Grass, (*Dactylus glomerata.*)—This grass is said to be a native of Virginia, but has been extensively cultivated in Europe for more than a century. A quaint English writer says: "If one species only is thought preferable to another in the alternate husbandry, that specie is the *dactylus glomerata*, from its most numerous merits." Where grass takes its place in a rotation of crops, or where it is proposed to cut but two or three crops before breaking a meadow, the orchard grass is admirably adapted to these purposes, but for a permanent meadow it is inferior to several other varieties. It inclines to grow in detached bunches, or tussocks, which gives a bad bottom for the sythe. It is a coarse grass, and, if not cut when in flower, the straw becomes very hard. It is, however, an early grass, and is perhaps better adapted to sowing with red clover than any other grass we have. Sinclair, in his experiments at Woburn Abbey, sowed a field in two equal parts, one with rye grass and the other with orchard grass. The field was pastured with sheep. He tells us that from spring to midsummer the sheep preferred the rye grass, but after that they left it and adhered to the orchard grass the remainder of the season. It has the reputation of enduring shade with less injury than most other grasses.

There are several other varieties of grass that are cultivated for hay to a limited extent by the English farmers, but these are deemed the most important. In addition to these we have a variety of native grasses, of the character of which and their susceptibility of improvement by cultivation little or nothing is known. The rapidity with which cattle take on flesh while grazing on our prairies is conclusive proof that many of our prairie grasses are very nutritious, and, if cultivated with proper care, might result in the production of several valuable varieties of meadow grass; but that they would not endure close pasturage is demonstrated by the dying out of our closely cropped prairies in a few years. One difficulty stands in the way of all experiments with prairie grass in regard to its cultivation; that is the scarcity of seed. The most valuable of our prairie grass seems to send up blades only and propagate itself by the root.

It will be observed that I have said nothing of clover as a hay material. I have been speaking of *grasses*, and clover belongs to an entirely different family—it is not a grass. However, as it is used for both hay and pasture in this country, it may not be amiss to give the species of *trifolium* a passing notice.

Red Clover, (*Trifolium pratense*), is the only variety that has been used as a material for hay. It is readily grown upon any soil not too moist, and is held to be an excellent crop for restoring ground that has been exhausted by over cropping with the cereal grains. Clover hay is a coarse unsightly provender, and yet horses and cattle eat it readily, and if well cured it is healthy and nutritious. It

should be cut when in full bloom, and if possible put in mow without rain or dew, as it endures moisture in curing badly. The aftermath, or second crop of clover, is unfit for hay or pasture, as it has the property of producing a true salivation in all animals eating it.

THE WHITE CLOVER, (*Trifolium repens*), has never, to my knowledge, been raised in this country for meadow purposes, nor indeed is it often sowed for any purpose. It grows by neglect, and is esteemed by most farmers as a pest to pastures and meadows. Yet it is a very nutritious food in the early months of pasturage. Later it has, even stronger than the red clover, the salivating property. I remember having seen a variety of clover growing wild about the Mississinnawa villages while yet the Miami Indians inhabited them; it resembled in form somewhat the red clover, but the bloom was white and the stalk more recumbent or vine-like. Whether it is yet to be found in that vicinity or not I am not informed. If it is I would deem it worthy of careful experiments in its cultivation.

There is no branch of agriculture that will yield a larger profit on the labor bestowed than hay culture. If we avail ourselves of the late improvements in cutting grass by horse-power, the whole expense of raising hay will not exceed three dollars per acre, and with ordinary care and attention an average crop of two tuns per acre may be produced, which at eight dollars per tun would make the accounts stand about thus:

Two tuns of hay at $8 per tun,		$16 00
After crop mowed or pastured, per acre,		2 00
		$18 00
Spring top dressing, per acre,	$1 00	
Harvesting, per acre,	3 00	
Interest on cost of land, say per acre,	1 00	
		5 00
Net profit per acre,		$13 00

By harvesting with a mowing machine and horse rake a farmer of very moderate means may save one hundred acres of meadow, if proper care be taken in the selection of varieties of grass that will ripen successively from June till August. This will give a net income of $1,300. Our facilities of reaching market are daily extending into almost every nook of the State, and the leisure of the winter months may be employed in pressing into bales and putting into market the hay crop of the previous summer.

Another advantage in hay culture not to be overlooked, is the actual improvement of the land laid down in grass, if, as should be the case, proper care be taken to supply the waste of the mineral elements of the soil. For this purpose an occasional dressing with lime, either in the form of gypsum, super-phosphate, or lime slacked with brine; or, better, a mixture of all will be sufficient for this purpose. Thousands of acres of second or third rate land now lying uncultivated, by extending this important branch of agriculture, may not only be made a source of large income for the present, but may be fitted in a few years to the production of heavy crops of grain.

The subject of preparing land for meadow is one of the first importance. Timbered land should not, if it can be avoided, be stripped of its shade and exposed suddenly to the full influence of the sun. The better plan is to "deaden" such timber as will decay soon. The third or fourth year after this operation has been well performed, the timber may be removed, and if it cannot be profitably brought into market as fuel, may be burnt on the ground. The oak, walnut, and other durable timber, should always be removed by grubbing; it will cost something more, but not as much as working around unsightly and inconvenient stumps for twenty years. The ground should then be well broke with a heavy plow, harrowed to an even surface, sowed, harrowed again, and lastly rolled well in both directions.

Land which has been devoted to grain culture should have either a heavy green crop of clover or a dressing of stable or barn-yard manure, plowed in, and afterward leveled and sowed in the same manner as new ground. The best time to sow grass is September or early in October. If sowed in the spring, it should be protected from the summer heat by the shade of oats or some other spring crop. In sowing grass, for either meadow or pasture, the English farmers never sow one kind of grass alone. Nature would indicate the propriety of this, as in natural herbage we never find the whole surface monopolized by one variety of plants. Nature, wisely and benevolently, produces an almost infinite variety of grasses, adapted to every conceivable variety of soil and situation. The bleak and barren mountain side, the arid sand plain, the marsh and bog, have each been clothed with appropriate vegetation. Profiting by this hint we can greatly increase our crops of hay, as the English farmers have demonstrated. The increased yield is easily accounted for. When as many stalks of one kind of grass is produced as the earth is capable of supporting, another variety, taking from the soil different elements, may grow between without materially interfering with the first, as they are not competitors for the same nutritious particles in the soil.

With the present meager list of grass seeds within the reach of an Indiana farmer, we would advise, on dry loamy land, a mixture of seeds (per acre) something in this wise: Timothy, clean seed, 3 quarts, red clover, 2 quarts, orchard grass, 4 quarts—mix. Or, if the ground is moist and inclined to be swampy, replace the clover with red top. It is very desirable, however, that we should introduce from abroad new varieties, and test their adaptation to our climate and their capabilities of production. This can readily be done by the members of Congress through the Patent Office. Let any farmer make out a list of foreign grass seeds which he wishes to try, send it to his representative in Congress, and if that Congressman does not deem the mission thus committed to him of more importance than president making, he will give proof that he is unfit for the place he occupies—that's all. In this manner it will be easy to add many a valuable grass to our present scanty list.

Meadows are liable to become root bound, or sometimes there is formed a species of moss on the ground, which operates to dwarf the grass. Meadows in this condition, if the land lies so as to be fit for tillage, should be plowed up and put into cultivation in grain, if it be but for a single year. If, however, the position of the surface is such that plowing would be impracticable, then passing a heavy harrow over the meadow early in the spring will greatly relieve the bound condition of the

soil. Great diversity of opinion prevails among farmers as to the proper time to cut meadows, especially those consisting wholly or mainly of timothy. Some prefer to cut in full bloom, while others suffer the seed to become fully ripe and the blades mostly dry. Experiment will demonstrate that a point, as near as may be half way between these, will give the greatest weight of hay and yield the largest amount of nutriment in a given weight. As soon as the blossom has disappeared, and while the seed is soft, is the most appropriate time to cut timothy. Orchard grass, if suffered to become ripe, is even more worthless than timothy. The red top will stand longer without injury than any of our common varieties of grass. I think, from appearances last year, that the soft meadow grass of Dr. Stephenson will equal it in this respect.

PASTURE.

Sinclair gives us a catalogue of one hundred and thirty species of pasture grasses in common use in England, while we have employed but one species, divided into two or three varieties. These are the Kentucky blue grass, (*poa pretensis*), small spear grass, (*poa debilis*), and perhaps another variety whose botanic character is not yet well defined. The Kentucky blue grass possesses qualities as a pasture grass that places it high in the scale of excellence. It is an early grass, endures close pasturage, and the rigors of our winters exceedingly well, and is very nutritious. It is sometimes liable to injury from long continued drouth and excessive heat. It requires a large supply of lime in the soil to insure a luxuriant growth, and a durable sod; hence it grows more vigorously in Kentucky, and along the silurian hills of the Ohio river, and the mountain limestone counties of Putnam, Monroe, and Lawrence, than in those regions of sandstone, or drift formation, through the central and northern parts of the State. It produces good pasturage even when shaded by a dense forest. The large Kentucky blue grass has by some botanists been deemed a distinct variety, to which the name of *poa gigantes* has been given, and the native place of this variety has given rise to quite an animated discussion. It is claimed to be a native of Indiana, found about the Indian towns on the Wabash, and carried to Kentucky by the returning soldiers from the Tippecanoe excursion of 1811. I remember distinctly that the Indian towns on the upper Wabash, before the Indians left, in 1840, were surrounded by blue grass of an incredible growth. I measured several bunches that were six feet high!

A mixture of red top with blue grass would improve all pastures where the land is low or inclined to be wet. On dryer lands, and especially in shaded situations, the addition of orchard grass would be a decided improvement. especially for early pasture. The experiment of introducing foreign varieties of grass for pasture is as important as for meadow. Many of the English grasses are hardy and nutritious; they might not endure our climate well it is true, but on the other hand it is possible that a change of climate would result in an improvement of the good qualities even of a good grass.

Whatever grass is used, great care should be taken not to graze too closely the late fall growth. An early and vigorous spring crop depends much on a good winter protection. The blue grass will furnish excellent grazing for stock all winter when not covered with snow, if the fall crop be suffered to grow undisturbed, and serve as a protection to the under-growth of grass.

By removing the under-wood and worthless timber from the wood-land, which farmers propose to preserve for the purposes of fuel and repairs to the fences, &c., each acre might be made to pay a handsome profit, if set in pasture with appropriate varieties of grass; and all this, while it would cost comparatively nothing, would add much to the beauty and healthfulness of farms. A wise man has said, "he is a benefactor of his race who causes two blades of grass to grow where but one grew before;" and this is just what we in Indiana can and ought to do. We produced, in 1849, 402,506 tuns of hay, worth $3,220,040, and pasturage to at least an equal value. This amount can be very readily doubled without diminishing the grain crop per acre, or very materially increasing the effective laboring force. Two acres of hay can now be cut and put up by means of the horse-power mower and rake, with no more labor than was required a few years ago to save one acre with the scythe and hand-rake. Nor will it be necessary, in order to double the production of grass, that we double the acres devoted to the crop. Of all the departments of agriculture none presents so slovenly and unfarmerlike appearance as the grass lands. Meadows with here and there a pile of logs—monuments of the primitive forest, left to disappear by the process of slow decay—unsightly stumps, surrounded by an ever widening circle of briars—clumps of bushes springing up here and there, threatening to reclaim the meadow to the dominion of the forest again, are too often the prominent objects of attention in a western meadow; and if our meadows receive but little attention our pastures get less. It is true that grass culture requires less labor and attention per acre than any other kind of cropping, but this is no reason that that little should be denied it. A smooth, unobstructed surface is necessary for a meadow. Nor can we suppose that we can take forty hundred weight per acre from the soil, every year, and return nothing to it, without exhausting it; and so much of the pasture land as is covered with logs and brush, or permitted to grow up in briers, is a *negative quantity*—worse than useless ground.

We subjoin the following table of grasses collected from Professor Way, Mr. Johnson, and other sources. The first column of figures gives the per cent. of water in each grass cut at the time of flowering. The figures in the other columns refer to the per cent. in the dry matter after the water is subtracted. To avoid technicalities, I have arranged the nutritious principles into flesh-forming and fat-producing elements:

*NAMES OF GRASSES.	Water.	Flesh producing principles	Fat deposit'g principles.	Woody fiber.	Mineral substance or ash.
Timothy	57.21	11.36	57.00	26.46	5.24
Red Top	78 20	11.21	45.60	39.78	3.21
Meadow Fox Tail	80.35	12 22	46.03	33.83	7 81
Meadow Fescue	69.33	12.10	43.77	38.71	5.42
Rough Meadow Grass	73.60	9.80	43.84	38.03	8.33
Sweet Vernal	80.35	10.43	46.89	36.36	6 32
Rye Grass, (Italian)	75.61	10.10	61.09	19.76	9.05
Soft Meadow Grass	69.70	11.52	42.81	39.30	6.37
Orchard Grass	70.00	11.36	47.46	33.70	5.81
Kentucky Blue Grass	67.14	10.25	45.69	38.02	5.94

*Botanical names given in the preceding pages.

ON THE FRUITS OF INDIANA.

BY WILLIAM H. LOOMIS, OF ALLEN COUNTY.

This important branch of industry may be said to have attracted as yet very little attention in Indiana, notwithstanding the fact that we have all that can be desired in point of soil, exposure, &c., for the successful culture of fruits. The variety of soil is probably more extensive in our State than any other of the western States. We have prairie, river bottoms, heavy timbered lands, and the oak openings. Soils, embracing every texture and grade of fertility, from the stubborn clay, to the most alluvial and productive, abounding in mineral and vegetable substances. We have often wondered that the natural advantages of Indiana in a fruit growing point of view should have remained so long comparatively unimproved. We possess advantages over any other State. Not only are these advantages ours in point of soil, &c., but we are in the very heart of a great market for all our products. The fruits of Indiana are now finding a first class market at Chicago, Milwaukee, and are even transported to the extreme north, as far as the copper mines, pineries, and Lake Superior regions, and this outlet will always be good. Those sections cannot grow fruit, hence they must look to our State for a great portion of their supply. In addition to the north, we have the south and east; and we should not claim to be a prophet if in the course of a very few years the fruits of Indiana would be offered in the New York and Philadelphia markets.

Experience has shown that there is great need of adapting means to ends, and that this is as important in a horticultural point of view as in any other. While we know that high exposure and a sandy soil are the first and most desirable points to be observed in locating a peach orchard, and that planting this fruit on the alluvial bottom or prairie soils would be a failure, while on the former soil and exposure, success would be equally certain. The same rule as to exposure holds good with all fruits, for they readily become adapted to most any soil. But for pears and apples, especially the former, clay must exist in abundance. If clay and gravel, with a dry subsoil, so much the better. We earnestly hope for the day when there shall be more attention given to the culture of fruits among our rural classes At present there seems almost to exist a line of distinction between horticulture and agriculture. But to attempt to draw such a line is among the impossibilities. The orchard is too nearly connected with the interests of the farm, for what is Home, especially in the country, without a due proportion of space, attention, and soil appropriated to orcharding? Or what would become of our "fire-side enjoyments," and who could respond to that ever welcome sentence, "bring on the apples?" Indeed, our social enjoyments would be cut short if deprived of our rich and delicious fruits, embracing as they do every variety of form, flavor, perfume and excellence, administering both to our health, comfort and enjoyment, besides being a very profitable source of industry, rewarding liberally all those who embark understandingly in their cultivation.

To show the importance of fruit culture in our State, it will be remembered that

we produced in 1853, $770,890 worth of fruits, while that of nine counties only produced $175,449, being nearly one-fifth of the entire orchard products of our State for the same year, (these were the counties where most attention had been given to fruit culture, there being no advantage in point of soil, &c.), and amounting in the agregate to about one-sixth of the total value of the wheat crop for that year. Thus it will be seen that the cultivation of fruits is in no way behind any other particular branch of industry, while all will admit that it contributes greatly to our health, prosperity, and happiness. This, for a new State, is doing remarkably well, when it is known that the probable number of fruit trees growing in orchards twenty years ago would not exceed fifteen thousand.

Were it necessary, abundance of proof might be obtained showing the bearing that fruits possess in a health-giving point of view. Take a common and familiar class of diseases, bowel complaint including others of that stamp. Dr. Kennicott, of Illinois, says, "nineteen out of every twenty cases might be prevented by the free use of ripe fruits. In the juices of ripe fruits lie their medicinal qualities, and though a most philanthropic prejudice meets us here, we most religiously believe that when properly fermented and pure in the form of wine and cider, these are equally beneficial, and in reasonable quantities very harmless. Numerous instances of this kind compel us to believe further, that in the extension of vineyards and orchards we shall ere long be compelled to apply in order to check intemperance. Cider, better by far than half the imported, may be made for thirteen cents per gallon, and the delicious Sparkling Catawba and Cincinnati dry wines we are told can be produced at four times that price." When all the lands in the southern part of our State not suited for other purposes shall have been converted into vineyards, (and we may be allowed to prophecy to the effect that those who live fifty years hence will see that day, and there is a great deal of land suited to little else, among these are our barren river banks and hill sides, extending over our entire southern boundary), we have before us carefully prepared estimates giving two hundred gallons per acre as the lowest probable average, making a net profit of seventy-five to eighty dollars per acre at present prices.

Many of the smaller fruits are nearly as rapidly and cheaply grown as vegetables, requiring but little space for the supply of a large family, and at this day the bringing of an orchard into a bearing state is but the work of a few years, say six or seven at most, and with dwarf trees only half that time is required. One acre of ground well set out with fruits that have been judiciously selected will give the proprietor fairer and more luscious fruits than are now grown on five farms out of every six the State over.

It has been repeatedly shown that an equal portion of well chosen soil with the same outlay will in no other crop yield as much money during an ordinary lifetime as an orchard.

The relative amount of nutriment has been settled by repeated analyses. The apple has been found much richer in the principles which tend to the formation of brain and muscle than the far-famed potato. Admitting the latter to be the richest in fattening qualities, the sweeter fruits are best adapted for food, while the acid sorts are most grateful to the palate and valuable as preventive and remedial agents. Yet commend us to the *par excellence* of exquisite flavors, the peach, which may be grown on all the hilly and sandy soils of the State, in the perfection

which has heretofore been considered attainable only in New Jersey and Maryland; but good judges have pronounced that Indiana could not be surpassed in the rich and delicious flavor of her peaches.

The growing of fruits, aside from the pleasure derived and the medicinal qualities, as we have endeavored to show, together with the remunerative profits derived, also exerts a salutary influence among our people. Their cultivation begets a "home feeling." It renders our people more contented, for who, after having felled the forest, converted the stubborn soil into a rich mellow texture, and in fact made the wilderness and barren waste "blossom like the rose," and has planted fruits about him, is not less affected by the popular bugbear of "a little farther west," than the mere squatter, who may truly be said to be a moving menagerie. We think then, in a few words, that horticulture tends strongly to fix the habits and elevate the character of our whole rural population; and without being much of a philosopher, we are led to remark that one of our most striking traits is a spirit of unrest. It is, however, the grand element that enables us to clear vast forests, to break the wild prairie, and convert them into vast cornfields of an hundred acres in extent; and notwithstanding that we have thousands of acres as wild as when the red man's fires went out, yet we venture the assertion that no State in the Union, of our age, is as much affected as is ours by this spirit of unrest, which drives the emigrant wagon across vast sandy deserts to California, and over rocky mountains to Oregon and the Pacific.

This is the grand exciting side of the picture. Turn it in another light and study it, and the effect is by no means so agreeable to the reflective mind. The spirit of unrest follows into the bosom of society, makes a man a feverish being, unable to take root any where. He leads socially and physically the uncertain life of a tree transplanted from place to place. Much as we admire the energy of our people, we value no less the love of order, the obedience to law, the security and repose of society, the love of home and the partiality to localities endeared by birth or adoption, of which it is in some degree the antagonist; and we are therefore more and more convinced that whatever tends, without checking due energy of character, but to develop along with it certain virtues that will keep it within due bounds, may be looked upon as a boon to all who love to see vast forests converted into homes of law-loving and peaceful inhabitants.

It is not difficult to see how strongly horticulture contributes to the development of local attachments; in it lies the most powerful philter that civilized man has ever found to charm him to one spot of earth. It transports what is only a wild prairie or woodland and a bleak aspect "into an Eden of interest and delights;" it makes all the difference between "Arabia the blest," and a pine barren; it gives a bit of soil such an importance in the eyes of its possessor, that he finds it more attractive than countless acres devoted to any other purpose; in other words, it contains the mind and soul of the man, materialized in many of the fairest and richest forms of nature, so that he looks upon it as tearing himself up root and branch to move a mile either to the right or to the left. Do we need to say more to prove that horticulture is the real panacea that binds man more to one spot of earth than all other influences combined? In fact, it is the real application to permanently settle mankind; 'tis horticulture then that gives us permanent residents, who improve prairies and woodlands, converting the natural bleakness of our country into Edens of

repose and happiness. It also exerts a very beneficial influence among the youth of our State, adding to their pleasure and enjoyment, encouraging a home feeling which is very seldom lost sight of, increases the attractions of the farm, whereby our young men are induced to become tillers of the soil instead of seeking employment in our cities and towns, where disappointment awaits them at almost every step.

As to the variety of fruits grown in our State much might be said, and volumes might be written, concerning their adaptation to certain localities; for while some varieties succeed perfectly in some sections of our State, and utterly fail in others; in cases the differences in soil produce the change, while in others it is caused by difference in temperature, exposure, &c. More experience is needed before we can arrive at definite conclusions in this particular. For instance, varieties known to succeed in the southern part of the State, when grown north, are only second rate, and vice versa. To a certain extent, therefore, we can only arrive at general conclusions; while on the other hand, there is an extensive variety which is being grown in most sections of the State with good success and known to possess great merit. The varieties of fruits in our State are very extensive, among which will be found representatives from nearly every State in the Union, having been brought here by the early settlers under local names: hence the confusion in our nomenclature, which is rapidly giving way under the influence of our State and County Agricultural Societies.

But for the modus operandi of fruit culture we can only refer to the works already published for general descriptions and modes of cultivation to be adopted. I may be allowed to remark here, however, that the proper mode of culture to be adopted in the west is far different from the one generally entertained or found in eastern publications.

Our climate is more varied and changeable at times during December and February. The mercury indicates forty-five and fifty degrees, and in a very few hours we are not surprised to find it below zero,* often blighting our hopes as to the next fruit crop, and proving disastrous to young trees. These occurrences, like most others, may be prevented if a course of judicious cultivation is adopted. And the first requisite is a thorough and practical understanding of the wants and requirements of fruit trees. These we shall in brief endeavor to give. Orchards, where low heads have been formed, are found to bear earlier, better, and more uniform crops, besides being more hardy than those which have been trimmed up, as the saying is, as high as one can reach. There are thousands of trees in our State of the latter description, and it will be found on examination, that most of these trees have been blown over by strong south-west winds to an angle of fifteen to twenty degrees, causing the sun to strike them, the effect of which is, that all such trees with hardly an exception, are dead on said south-east side from the main limbs to the ground. Any one who will take the trouble to examine this part of our subject will find that we are not wide from the mark; they will also observe that low topped trees are never affected in this wise—hence the very general popularity of the Yellow Bellflower the State over. Its low and drooping head forms a protection to the trunk of the tree, both by diverting the sun's rays from the body

*This will only apply in the northern part of the State.

of the tree, and affording a protection in the form of limbs and otherwise during winter.

These remarks apply to all fruits, especially the Apple and Pear. Of the particulars of fruit culture, it is here unnecessary to go into a discussion of the various modes. All are very well aware of the importance of good culture, and also of good and careful planting, under draining, mulching, cutting, and purching in, and the mode of shortening in peach trees, dwarfs of all descriptions, &c.

Below will be found lists and descriptions of some of the principal fruits which have been recommended for cultivation in our State, both north and south of the national road.

List of Apples recommended for general cultivation South of the National Road.

1. Pryor's Red.—Size medium, regular, mostly covered with russet and stripes of dull red—keeps well till April and May. The tree grows slowly, but bears regular and large crops of fair fine fruit. Succeeds best on rich deep soil.

2. Cannon Pearmain.—Medium, yellowish, with pale red stripes. Grows well, and bears regular crops. Keeps well to mid-summer; profitable for market culture.

3. Michael Henry Pippin.—One of the popular fruits, succeeding well south and west. Medium, conical, yellowish green; flesh fine, tender, juicy, and sweet—valuable for culinary purposes, bakes beautifully in from November to April. This variety is often confounded with White Winter Pearmain, but we think them distinct, though very much alike. The latter is more regular in form, and often flushed on one side. Both valuable varieties.

4. Yellow Bellflower, is very popular and fine large; a yellow fleshed rich fruit, not as juicy and sprightly as the Ortley.

5. Ortley, (Green Bellflower, &c.,) a large oblong apple of the first quality; skin smooth, pale yellowish white, becoming fine yellow at maturity; core large, flesh white, fine grained, brisk, mild, but acid; very sprightly; a better grower than the Yellow Bellflower; has more admirers, and is a very fine fruit.

6. Newtown Pippin.—Large, very popular, and well known all over the State, of the first quality.

7. Summer Queen is much grown for market, bears large and uniform good crops; not regarded as a desert fruit; cooks well, and should be in every orchard.

8. Early Harvest (Prince's), our best early tart apple, grows well but bears sparingly. Tree hardy—is very popular, and always commands the first price in the market.

9. Carolina Red June.—This, of all our apples, is the most valuable as an early market fruit. Size, medium to large; form, oblong; yellow ground, clouded and splashed with dark red; almost black in exposed specimens; upright slender grower, profuse bearer, and from its fine appearance, and fair, uniform size, is saleable. A peculiarity of the tree is, it retains its foliage nearly all winter on young trees. Distinct from Early Red Margaret.

10. American Golden Russet, (Sheep Nose).—Small roundish ovate, russeted on a bright yellow surface, with marks and splashes of red on one side in exposed specimens. This is a fruit of the best quality. Bears finely, March or April.

11. Butter, (Sweet Bellflower).—This is a well known and popular fruit, south. It is used extensively in manufacturing apple butter. Form, large flatish; not an apple worthy of cultivation except for the purposes above specified.

12. Newtown Spitzenburg, (Vandevere of New York, Ox-Eye of Ohio and Indiana).—A moderate and regular bearer; fruit of the first quality.

13. Rawls' Janette, (Neverfail).—Medium to small; large at the south; round and regular; fat at base; striped, and splashed with pale red, becoming yellowish at maturity, with a refreshing, juicy and sprightly flavor; always retains its flavor, and keeps well until May and June; in fact almost the only apple in market after April. This is the most valuable fruit, as a single variety, of the long keepers in our State. Very popular and well known, both north and south.

14. Wine Sap.—Very popular, and generally ranks as A No. one in all collections. Bears good and very uniform crops; of highly colored medium sized specimens; in use from November to April. One of the very best fruits for culinary purposes.

15. Herefordshire Pearmain.—Medium; flattened; dark red, with ground work of russet and yellow; a very rich yellow flesh, and a very desirable variety. Regular bearer; November to January.

16. Gabriel.—Fruit medium, roundish conical; striped and splashed with pale red; good bearer. Fruit of the best quality, resembling the Fameuse in flavor and sprightliness, but a richer fruit. Flesh yellowish, juicy, a mild sub-acid flavor. November to December.

17. Rambo.—This old and well known variety attains the greatest perfection bordering the Ohio; is much admired by all, and especially by those who do not relish very acid varieties. It is much grown as a market apple and always sells. One of the best growers, forming a fine large orchard tree. November to February.

18. Limber Twig.—A popular variety, much grown at the west; is much admired as a long keeper, being in perfection from April to June, which, together with its large, fine appearance, makes it one of our first class long keeping fruits. The tree is very hardy, seldom attacked by blight, &c.

19. Jonathan.—This resembles very nearly the qualities of the Wine Sap; is larger, a better keeper, darker colored, often nearly black, but does not bear as profusely, nor is the fruit as juicy and rich. A fruit that should be in all collections.

There are many other varieties which might be recommended of the first quality, but time and space will not allow me to extend the list at present.

List of Apples recommended for general cultivation North of the National Road.

As included as above, Nos. 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 17, and the following:

Swaar.—This truly valuable fruit maintains its original character; large, flatish. Season of maturity from January to March.

Baldwin.—This old and valuable apple succeeds even as well here as in Massachusetts, where it is said three-fourths of the apples in market, after March, are of

this variety. An elegant grower; bears early and abundantly; does not succeed on the prairies, but is all that can be desired on other soils.

Fall Pippin seems well adapted to our soil and climate; is large and fair, and always out-sells any other apple in its season; should not be confounded with Holland Pippin, as it is in nine cases out of ten; the latter being a summer fruit of inferior quality, except for cooking.

Sweet Bough.—This old and well esteemed fruit also finds a comfortable home in our western soil. Very popular and much grown for market.

Pomme Grise.—This little favorite enjoys the reputation of being, although small, one of the very best fruits for the table; bears abundantly, and is in use much longer than most apples. Season, November to March.

Domine.—A good grower; bears early and very abundant crops of large, fine specimens; always fair, commanding the first price. This must become very popular.

Peck's Pleasant.—A large, fine appearing fruit, and promises to become one of the best. January to March.

Golden Sweet.—A somewhat rapid but sprawling grower; a productive and valuable fruit; in demand for baking, coming in immediately after Sweet Bough, and continuing some time in use. Not as well adapted to prairie as other soils. In use from September to October.

Tolman Sweeting.—Not much cultivated because not generally known. It attains fine perfection, and is rapidly coming into public favor.

Bellmont, (Gate or Waxen).—Retains its eastern reputation, being in all western collections A No 1. It is all that can be desired in a rich, pleasant, sprightly fruit; attains great beauty in our State, and should be extensively grown.

Northern Spy.—This popular eastern variety has, as yet, disappointed all who have grown it in this State. It attains large size and great beauty, but is very tardy in coming into bearing; and instead of keeping until spring, has in nearly every instance ripened in December and January. We are in hopes to be enabled to speak more favorably of it hereafter.

Westfield Seek-no-further.—Medium to large; dark bronze color when taken from the tree, with clouds and stripes of dull red, becoming a bright, rich yellowish color at maturity. Succeeds best on a loose porous north hill side, when it is very fine. November to January.

Large Yellow Bough.—Medium to large; later and distinct from Sweet Bough, and by some regarded superior; was brought from Virginia some twenty years since. A fruit of the first quality as an early autumn variety.

Fameuse, (Snow Apple).—This exquisitely and beautiful desert fruit attains the best perfection, and universally admired. Should be in every collection.

Hubbardston Nonsuch.—Very large, bright red and yellow ground, clouded with deep red. One of the most beautiful apples grown, commanding the first price in the market; a very rapid and fine grower; bears large and uniform crops; in good keeping until March, when it is all that can be desired; retains its freshness a long time.

Jersey Sweet.—Medium roundish, yellow, nearly covered with stripes of pale red; fine grained, juicy and sweet. October.

Cloth of Gold.—Large, roundish flattened; bright yellow, with fine russet specks.

Very valuable as a market fruit from its large size and fine appearance. Late autumn.

Esopus Spitzenburg.—This old and popular fruit attains great perfection in most sections, and is all that could be asked for as a first rate winter fruit. Is in prime eating order from December to February.

We shall of course be excused from giving any more descriptions, but below will be found a list, which we find in the March number of the "Horticulturist," by P. Barry, of Rochester, which, as there stated, will be found valuable as a table of reference as to the relative value or popularity of the various varieties of fruits. Space will not allow me to give the names of the States in which the variety has been recommended. The figures following the name gives the number of States in which the variety has been recommended:

APPLES.

Danver's Winter Sweet	6	Jonathan	3
Williams' Favourite	6	Early Strawberry	3
American Summer Pearmain	3	Fameuse	6
Summer Queen	7	Smokehouse	4
Maiden's Blush	7	Wine Sap	5
Porter	7	Rawles' Janett	3
Gravenstein	7	Baldwin	9
Vandevere	5	Roxbury Russeting	9
Newtown Pippin	10	Northern Spy	3
Rambo	9	Rhode Island Greening	10
Golden Russet (American)	4	Swaar	4
Holland Pippin	3	Esopus Spitzenburg	8
Summer Rose	7	Early Harvest	13
Fall Pippin	9	Sweet Bough	12
Bellmont	7	Yellow Bell flower	12
Hubbardston Nonsuch	5	Fallawater	3
Golden Sweet	3	Ortley	3
Red Astrachan	8	Lady Apple	3

PEARS.

Tyson	8	Beurre d'Aremberg	3
Dearborn's Seedling	9	Le Clerc	7
Beurre Bosc	7	Beurre Brown	4
Golden Beurre of Bilboa	5	Beurre Goubalt	3
Louise Bonne d'Jersey	12	Marie Louise	7
Van Mons Leon de Clerc	3	Duchesse d'Orleans	3
Madeline	10	Frederick of Wurtemburg	5
Elizabeth	3	Beurre Giffard	6
Beurre d'Amalis	5	Paradise d'Automne	3
St. Ghislain	6	Rosteizer	7
Doyenne d'Ete	8	Washington	4
Julienne	8	Stevens' Genessee	3
Beurre Diel	7	Urbaniste	6
Flemish Beauty	8	Doyenne Boussouck	3
Fondante d' Automne	8	White Doyenne	11
Winter Nelis	11	Passe Colmar	5
Andrews	6	Brandywine	4
Heathcot	4	Fulton	4
Onondago	3	Easter Beurre	7
Napoleon	5	Dix	5
Bloodgood	8	Glout Morceau	9
Bartlett	12	Beurre d'Anjou	4
Sickel	12	Doyenne Gris	3
Duchesse d'Angouleme	12	Buffum	3

PEACHES.

Early Tillotson	4	Morris White	6
George the Fourth	4	Large Early York	5
Crawford's Early	6	Red Rareripe	4
Crawford's Late	5	Lemon Clingstone	3
Early York	6	Oldmixon Clingstone	5
Grosse Mignonne	4	Yellow Alberge	4

PLUMS.

Green Gage	8	Huling's Superb	3
Lawrence's Favorite	4	Imperial Gage	4
Washington	8	Smith's Orleans	7
Jefferson	5	Lombard	4
Coe's Golden Drop	4		

CHERRIES.

Belle de Choisy	7	Early Purple	5
Yellow Spanish	9	Gov. Wood	3
May Duke	11	Black Tartarian	18
Kentish Morello	5	Napoleon Bigarreau	10
Black Eagle	8	English Morello	5
Elton	10	American Amber	3

APRICOTS.

Peach	4	Breda	5
Moorpark	5		

NECTARINES.

Elruge	4	Early Violet	4

QUINCES.

Orange	3	Apple Quince	3
Portugal	2		

HARDY GRAPES FOR OUT-DOOR CULTURE.

Catawba	9	Clinton	3
Isabella	11		

CURRANTS.

Red Dutch	6	May's Victoria	4
Black Naples	4	White Grape	3
White Dutch	8	Knight's Sweet Red	2

RASPBERRIES.

Red Antwerp	7	Fastolff	7
White or Yellow Antwerp	5	Franconia	6

STRAWBERRIES.

Hovey's Seedling	11	Boston Pine	4
Jenney's Seedling	4	Hudson	4
Large Early Scarlet	7	Black Prince	4
McAvoy's Superior	2	Iowa	2
Burr's New Pine	4		

There are many other fruits in our State which promise well; great numbers of which doubtless possess superior excellence; and we would most earnestly urge the production of new seedling fruits, which would be already acclimated to our soil and climate. Much good might be accomplished in this way. Will our horticultural friends turn their attention in this direction?

ON THE SOILS OF INDIANA.

BY IGNATIUS BROWN, OF MARION COUNTY.

The word *soil*, as defined by the best lexicographers, means "the compound substances which form the upper or surface layer of the earth." The object of this essay, therefore, will be the consideration of those substances with reference to their positions, kinds, and combinations in the several divisions of the State.

In this consideration it should not be expected that the components of soils peculiar to limited localities should be specified. A volume would be required to perform such a work adequately; and the collection of so many details would sacrifice the brevity and clearness required in a mere essay. Besides this, the analysis of these peculiar soils, as well as those which are the most widely found, are entirely wanting; thus rendering it almost impossible to write either a general or detailed work on the subject. We are therefore compelled to resort to the composition of the different geological formations for data which the laboratory should furnish, and to speak only of the soils which are most important and most widely found.

Soils are generally derived from the disintegration of the surface rocks, and their composition is governed by that of the underlying strata. This is the general rule where no disturbances have occurred, but of all rules it perhaps is the one most liable to exceptions. This disintegration is effected by the combined action of air, water, and carbonic acid, and occurs most rapidly in regions where the climate is subject to the greatest and most sudden alternations of heat and cold. We therefore find it progressing most rapidly near the summits of mountains and in high northern latitudes, where these conditions are fully filled. Allowance must also be made for the composition of the different formations, as those of a loose friable texture disintegrate much faster than the harder and more compact varieties.

Soils, as a general rule, being formed from the underlying strata, we should glance hastily at the geological features of the State before taking up the subject at length. The lower and upper silurian limestones underlie two-thirds of the State. The first occupies a triangle in the southeast corner, bounded on the west by a line running from Madison along the west lines of Franklin, Fayette, and Wayne counties, and leaving the State near the south line of Randolph; the latter, or cliff limestone, occupies the remainder of the State to the north, and is bounded west by a zigzag line which passes from New Albany north, near Indianapolis, and curving so as to cross the Wabash, near Delphi, it reaches the Illinois line a few miles south of Beaver Lake. Then comes a belt of argillaceous sandstone, ten or twenty miles wide, which follows the same general direction and forms the range of "knobs" to the N. N. W. of New Albany. To the west of this is a belt of dolomitic mountain limestone, several miles in width, also reaching to the N. N. W. To the west of this, and occupying the balance of the State, is the carboniferous group, consisting of thin beds of sandstones, shales, slates, limestones, clays, coal, and iron ore.

It would be useless to indulge in speculations concerning the character and quantity of the soils which originally covered these several formations; for if any existed they were subsequently disturbed to such an extent that no portion of the State fully retains them. The cause which effected this general transformation is termed "the drift," and its agency has been almost exclusive in the formation of our present soils. The causes which produced it, or the period in which it occurred cannot be ascertained; but it must have taken place after the main topographical features of the State were already settled. This is inferable from the difference in the depth, extent, and relative position of its deposits in different places; and to understand these differences it will be necessary to speak for a moment of the topography of the State. It occupies a part of the table land dividing the waters of the St. Lawrence from those of the Gulf. The northern verge of this table land crosses the State through Lake, Porter, St. Joseph, Kosciusko, Noble, and Dekalb counties, and from thence the ground slopes towards the north. Its southern verge is found in the range of counties bordering on or near the Ohio river, and follows the general direction of that stream. Its surface is somewhat depressed in the central portions, forming a slightly basin-shaped cavity, with a gentle dip from the Ohio line to the Mississippi river, and is drained by a system of streams whose valleys gradually deepen and widen as they pursue a S. S. W. course. By keeping these general features in mind, it will be easy to understand the effects they produced on the drift current in the different parts of its course.

It is easy to demonstrate that the drift came from the north, and that a very large proportion of its materials are not originally found in the State; but it is also evident, from the character of its central and southern deposits, that its action on our formations has nevertheless been very considerable. Its composition, however, is so nearly identical in the greater part of the State, that it may be treated as such; and, in pursuance of the plan heretofore adopted, its peculiarities will be disregarded and the general characteristics only be noticed. Its materials, derived from all kinds of rocks, and varying in size from the minute particles of compact drift clay up to the heavy coarse gravel and large granite boulders of the streams and prairies, have been ground together and most intimately mixed by the action of water, forming a soil better fitted in many respects for all kinds of vegetation than any other of equal extent in the world. The deposits are deepest and coarsest in its northern and central portions, while a thin, clayey soil, partially mixed with the debris of the underlying strata, is often its only mark in the southern.

Though many substances exist in soils, few are really useful; and the most important ones exist in the smallest proportions. The indispensable constituents are silica, alumina, lime, magnesia, iron, the alkalies, and their phosphates and carbonates, ammonia, air, water, oxygen, nitrogen, and oxidized carbon, silica, alumina, and lime, form the basis of all soils, and, with the phosphates and carbonates of magnesia, form the tissues of all kinds of vegetation. The remaining constituents act as the food of plants, and though not so great in quantity are still indispensably necessary. Silex, or sand, is the largest component, and with alumina and lime it is the base of all soils. Soils are porous, warm, and pervious to water in proportion to the quantity of silex they contain. It varies in our soils

from 50 up to 95 per cent., but is not in excess under 80 per cent., above which amount it requires annual manuring. Combined with alumina and the alkalies it becomes soluble and enters readily into the cereals and grasses, producing strong, firm stalks and blades. New ground is rich in soluble silica, and the cereals and grasses flourish on it till the supply is exhausted. Shales, slates and feldspathic granites, furnish soluble silica in large amounts. The drift formation is largely composed of these materials.

Alumina makes a soil tough, cold, and impervious to water; with organic matter and silex it forms the base of all soils. Clay is a silicate of alumina, and is far superior to silex in its capacity for receiving and retaining fertilizing matter: unlike silex, it rarely enters into the composition of vegetable matter, acting more as a base for the soil than a constituent of the plants.

Lime, in the form of carbonates and phosphates, enters largely into vegetable matter, and is therefore an essential element. By acting on the alkalies it sets free the soluble silica, making the latter available for the cereals and grasses. It also renders clay soils more porous and warmer. It is the cause of our heavy forests, and its presence in our waters proves its ample quantity in the soil.

Magnesia is furnished by all the rocks, and, in the form of phosphates, is the principal ingredient in the seeds and grains of our cereals and grasses. It forms the germ, while lime and silex form the stocks and stems of our trees and cereals. It is quite abundant in our soils, as many of our rocks are highly magnesian.

Phosphorus combined with the alkalies and iron exists in all organized bodies. With magnesia it forms the grains of cereals and grasses. With lime it forms the trunks of trees. It is soon exhausted by cultivation and must be supplied. The same is true of sulphur, which may readily be restored by the use of gypsum.

The alkalies enter largely into the composition of vegetation, and their absence would render a soil comparatively barren. When deficient they should be supplied by proper fertilizers. Ammonia also is a powerful element in the fertility of soils, but it is rapidly exhausted by cultivation. It can be readily supplied by ordinary stable manure. Clay rapidly absorbs ammonia and retains it better than any other soil.

In addition to the elements already named, good soils should possess a sufficient quantity of organic and vegetable matter; and in all respects we may assert that no soil combines all these elements more completely than that of the great drift region of the west. The vegetable and organic matter in some localities in this State forms regular beds, amounting to forty or fifty per cent. of the surface soil. Such localities are only equalled by "the valley of the Nile," and had they the climate of Egypt they would prove equally productive.

Having briefly specified the different useful elements of the soil, and the offices which each one performs, we will resume the consideration of the drift soil, and, in the absence of chemical analyses, must rely once more on the uncertain data afforded by its general composition.

The drift formation in this State may be divided into three general divisions. This division is made not only for differences in the character of the soils, but also for the purposes of comparison. The lines separating them are arbitrarily drawn, as the composition of the soil in each division changes so gradually into that of the next that it is impossible to fix any certain limits between them. Localities

may be found in each division whose soils resemble those of another; but in comparing the whole surface of one division with that of the next, we find a material difference existing between them.

The first or northern one includes the immediate valley of the Wabash and extends to the northern line of the State. Its characteristics prevail, in many instances, to a considerable distance south of the Wabash, but for the sake of convenience the line may pass near the valley of that stream. There is a disparity in the character of its eastern and western portions, the former assimilating to the central division. The drift deposits are thinner in the west and contain more sand, gravel, and boulders, with a less proportion of lime; but to compensate for this it contains a very large proportion of organic and vegetable matter, regularly stratified in places and forming from thirty to sixty per cent. of the immediate surface soil. It is consequently porous, and, being situated on horizontal beds of clay or compact limestone, receives and retains a large quantity of water. After its superabundant moisture is removed by ditching and draining, no portion of the west will surpass it in the production of our staple crops; its large proportion of soluble silica and vegetable matter especially fitting it for their growth. On account of its porous nature, however, it will lose fertilizing matter faster than soils containing a greater per centage of clay. The eastern portion of the northern division contains more clay and a larger per centage of lime than the western does. The soil, therefore, is tougher and colder, and better fitted to sustain a heavy growth of timber; in which respect it closely resembles the soils of the central division. In the northern part it is quite sandy, while in the south it becomes a strong clay, and is in all respects the same soil with that found in the northeastern part of the central division—it is a more durable soil and retains fertilizers longer than those in the western portions; but in many places it will require draining to make it available for agricultural purposes.

It is difficult to fix the southern line of the central division, but it may be drawn southwest from Fayette county until it includes the greater part of Bartholomew, when, bending north and west to the valley of White river, it follows that stream to the Wabash. The immediate valleys of the Whitewater, and the Patoka branch of White river, may also be included in this division. In consequence of its depressed or basin shape this region retained a much larger amount of the drift materials than either of the others, the deposits varying from fifteen to fifty feet in depth, and in some places even more. It also contains a very large amount of limestone gravel, derived most probably from the cliff and corniferous limestone of the north. Clay beds of variable thickness generally rest on this gravel deposit, forming a durable and retentive subsoil, well calculated to sustain the surface soil and generally well drained by the underlying gravel. The surface contains more alumina and lime, with less organic and vegetable matter, than the soil in the northwestern part of the State, and is therefore more compact, retentive, and durable. It is highly favorable to the production of heavy forests of hard woods, and produces the staple crops of the country in the greatest abundance. Wherever the clay prevails to excess—and it does in some localities in this division—the soil will be too compact and cold to produce good crops, unless it is thoroughly underdrained or modified by a mixture of sand or lime. The soils of the river valleys in the central division closely assimilate in composition to those of the north-

western parts of the State; and as they cover extensive areas, and play an important part in the production of our staple crops, they should also be taken into consideration. Taking it altogether the central division probably affords a greater amount of durable and productive soil than either of the others; and the time will come when it will generally be regarded as the most important agricultural region in the State. Although this division is generally level, the underlying gravel beds act thoroughly as underdrains in keeping its surface dry; and where, as in Boone and some other counties, we find the surface saturated with water, we may safely ascribe it to the compact clayey subsoil which reposes on the gravel. By cutting through this subsoil in many different places the water can easily be removed to the gravel below.

There is a great difference in the composition of the soil in the several portions of the southern division. This is due to three primary causes: first, the soil afforded by the decomposition of the surface rocks has been largely mingled with the drift deposits; second, the effect of the drift on the high broken grounds is less than in the valleys, but far inferior in both these positions to that which it produced on the flat land of the central and northern divisions; third, the subsequent action of water has greatly modified both the original and drift soils since their deposition. In the eastern part of the division alumina and lime are the principal components; in the central, silex and alumina; and in the western, alumina and lime. The other components exist in variable proportions, but to an extent far below what they hold in the north, and the soil is poorer, thinner, more compact, and unfitted for the full production of our important crops. Exceptions occur in particular localities, where the drift and the subsequent action of water has collected a greater variety of materials, forming a soil fitted in all respects to produce abundant crops. This division being broken and uneven, its soils are much better drained than those in the others; they are essentially inferior, however, to the northern soils, and no expenditure of time, labor, or money can make them equal.

In this review of our soils, in connection with the geology and topography of the State, we discover that the drift current was the principal agent in their production, and that its effects were somewhat modified in the different stages of its course by the physical features of the country. Though the ingredients in its deposits are everywhere essentially the same, their proportions are greatly varied in the several divisions we have named. The heavy, coarse materials, consisting principally of siliçious matter, were deposited at an early stage of its onward progress, forming the loose, sandy, productive soils of the north and northwest. The largest portion of its materials, composed of medium sands, clays, and lime sands and gravel, was deposited in thick beds in the central basin, forming the deep, durable soil of that division; while the finer clay and lime floating near the surface was left on the high ground of the east and south, making the thin, compact, unproductive soil which characterizes many localities in those sections. No analyses having been made of these soils, it is impossible to give the proportions of their elemental constituents. All that can be said is that the northern soils contain the greatest amount of silex and vegetable matter, and are the lightest and, temporarily, the richest in the State; those in the center are better compounded, stronger, more durable, and better fitted for long cultivation; while those of the

south are thinner, more compact, contain more alumina and lime, with less organic and vegetable matter, and are consequently less productive than the others.

In the consideration of this subject we at once perceive the bearing of geology and analytic chemistry on agriculture. Facts which would be eminently useful to the farmer and manufacturer are now entirely wanting and can only be supplied by a thorough geological survey. We hope that the legislature will respond to the very important suggestions made at various times on this subject, and authorize a survey which will supply reliable data in this and many other interesting particulars. Complete analyses of the soils in every county, showing the proportions of the phosphates and carbonates, with the other necessary elements of vegetation, are now imperatively demanded by the agricultural interest, and until they are made it will be impossible to specify the localities where our different staple crops can be most advantageously produced. As it is, our farmers learn the peculiarities of their lands by experiments, which necessarily consume time and exhaust the soil, when, if the information had been supplied at first, greater results would have been achieved with less expenditure of time and money. The annual increase in the productions of the State would probably repay the expense of such a survey If these analyses can be obtained through the agency of the society great good will ultimately result to the agricultural interest of the State.

ON MANURES.

BY OLIVER ALBERTSON, OF WASHINGTON COUNTY.

He who essays to lay down rules to govern other men's actions, should avoid prolixity and ambiguity, in order that their observance may be easily complied with; no extraneous matter should be admitted, nor doubts raised in the mind of the reader, as to the meaning of the author. Essays or treatises upon subjects calculated to improve the farming class in general, should be as much as possible free from scientific terms and technicalities, endeavoring to reach down as it were, and hand in hand with the farmer, walk over the premises, and in familiar conversation, lead him into a course of practice, the results of which will not only advance his own interests, but those of his associates too. The spirit of the motto, that "he who runs may read," should have its full weight with all agricultural writers. The farmer who, at the present day, only uses vigilance and industry during seed-time and harvest, and feels himself a man of leisure the remainder of the year, is not justly entitled to the name,—he libels their character,—could be called nothing more than a "crapper,"—shows anxiety for the present, but no wisdom in preparing for the future. To such we would commend the observance of some general rules, (modified as circumstances may require), in regard to the making, saving, and application of manures.

Anything whatever may be called manure, that will correct deficiencies in the soil to which it is applied. If your land is too sandy and light, or too close and heavy, or inclined to be sour,—anything you put on it which will remedy this, is entitled to the name of manure.

Manures may be divided into three classes, vegetable, animal, and mineral.

1st. Vegetable manures are those green plants which when buried in the soil, make it more productive,—they are numerous, but the most important and profitable for our use are grass, clover, buckwheat, rye, corn, &c. There are many other kinds not necessary to mention, as they are not profitable to come into general use amongst us; and farmers are fully aware, that most plants, when turned under the soil and undergo putrifaction, will afford more or less sustenance to crops. But we do not feel like lending our influence to much extent in encouraging the growing of green crops, solely for the purpose of manuring, believing it to be a wiser and more profitable plan, to avail ourselves of their use in a two fold way,—first, by feeding them to stock, and second, applying the manure to the land.

Circumstances may exist, under which each course may be followed by beneficial results. The proper time to plow in green crops is just when they are coming in flower,—they have then just reached their maximum point for quantity, contain the most soluble matter, and have the least damaged the soil by exhausting its nutritive substances.

It may be well to say, that clover stands pre-eminent for green manuring, not only because it draws a larger portion of its substance from the atmosphere, and consequently exhausts the soil but little, but it also has long top roots, which penetrate and loosen the earth, during its growth, and are profitable when plowed up for manure; being so thoroughly mingled with the soil,—and again the first crop may be cut for stock leaving the second for the two-fold purpose of seeding the ground for a future crop, and turning it for manure.

Those soils nearest exhausted of vegetable matter will liberally repay plowing in green crops, whether they be light or heavy, and in either case, a moderate sprinkle of lime, to operate mechanically upon the soil, and also facilitate putrifaction, is of undoubted benefit; but we desire to speak more of lime in its proper place, and now will inquire something about animal manure.

The most important of these are blood, flesh, bone, hair, wool, fish garbage, and the dung and urine of animals. Blood is a powerful manure, and those who live near enough the butchers to procure his compost of animal excrements and blood, at a reasonable expense, will find themselves amply repaid for their trouble. All waste flesh within the farmer's reach, should be covered with soil, mingled with a little lime; it makes a rich compost, and is one step towards cleanliness and health by keeping pure air.

All bones, too, should be collected with care for they come from the soil and it demands their return. Have not our farmers many times seen their cows chewing old bones and thought strange of the matter? but why should they when every ten gallons of milk contains about half a pound of bone earth, or phosphate of lime, which is nothing more than the refuse or inorganic part of bones after they are burned. Bones consist of glue and bone earth,—the glue is a good manure, but not perhaps so valuable with us as to pay the cost of diluting the bones with sulphuric acid (oil of vitriol), whereby it is saved,—but we can burn them and apply

the bone-earth to profit most especially on old pastures. They are unsightly dangerous things to be scattered over our premises, and a spirit of decency and safety added to interest, will certainly cause them to be properly made use of.

Hair and woolen rags should be gathered and put in the compost heap; they are valuable as proven by those who obtain them in large quantities and apply them to particular crops. We have them only in small quantities, and are not able to see their effects separately, but can safely rely upon the experience of others. The Dutch proverb, that "many littles make a mickle," is nowhere to be more truly applied than to the manure heap of the farmer.

Though the manures above mentioned are worthy our attention, yet the excrements of animals are the chief dependence of the agriculturalist for food for his crops. It is the duty and interest of all to exercise their best judgment in collecting, saving, and applying them. The quality of the excrements of different animals is not only different, but also that of the same kinds of animals varies very much by changing their food. Economy requires they should be judiciously mixed, so protected or situated as to insure safety from leaching away by heavy rains, and a watchful eye to prevent unnecessary and hurtful fermentation.

The urine of all animals is a powerful manure, and endeavors should be used to save it by having our stock enclosed in yards covered with some absorbent, such as saw dust, dry soil, peat, leaves, straw, &c. Such yards should be hollowed out in the center, to prevent loss by draining; also for the purpose of throwing all refuse matter, mixing the loose dung if need be with that of the cattle, to accelerate fermentation; indeed making it a convenient place of deposit for all the barn-yard gleanings, including the pig stye,—and at times the pigs will be of material advantage in working over, and thoroughly mixing the mass. If you find it is becoming too dry, and likely to ferment too rapidly, encourage your cattle to tramp over it and make it more solid and compact, and it will be safe; if too wet and cold, employ your pigs to loosen it up; mix with it some fresh stable manure, and you will facilitate fermentation. Your watchful eye should see that this was the receptacle for every thing that really is or would make manure or save it from wasting. Even the soap-suds from the kitchen, and the box from the privy, should not be exempted. A most excellent plan is, to sit a barrel of dry soil in the privy, a portion of which may at times be scattered in the box, rendering it inodorous and retaining its value.

The dung of horses is of a hotter nature than cows, because the latter void so much more urine. It requires watching when thrown in loose dry piles, or rapid fermentation will cause a great waste of ammonia. The smoke is visible to the eye, and the ammonia sensible to the nose, as it passes away; if suffered to continue long, you will find it covered inside with white mould, and to use a common expression with agricultural writers, it has become *fire-fanged*. This may be avoided by wetting, by making it more compact and solid; or still better, by incorporating it with the barn-yard manure.

The excrements of sheep, too, are very strong, and care to provide them when in enclosures, with suitable absorbents for bedding, will be true economy. The manure is ready, and perhaps better in its green state, for application, than otherwise.

The henery, too, should not be forgotten, for while guano may not come into

general use here at the present time, there may be a considerable amount of manure saved by each farmer that will approximate very nearly to it; save it, and mix with some soil, and it is good for top-dressing for young corn, potatoes, or turnips. When circumstances will admit, the pigs should be employed as before stated, to stir and mix the compost, but when inconvenient, and penned to themselves, they should be furnished with quantities of refuse matter into which they will incorporate their own strong manure, thereby saving it and rendering it more divisible—capable of being spread over more ground.

As to mineral manures, we must feel our way more carefully, by repeated experiments in regard to the safety of their application, and also as to profit. Perhaps muriate of soda, (common salt), gypsum, or plaster of Paris, wood ashes, and lime, are all that will repay our attention at the present time. Of these, lime may be the most extensively and profitably used, with the exception of wood ashes; at least, I would class them one and two.

Lime should be applied to peaty soils, those which contain a large amount of vegetable matter; to those which are very sour; to heavy clay lands, and light sandy soils, as well, in many instances.

In the first instance, it hastens the decomposition of vegetable matter, and thereby enriches the soil. In the second, it combines with acids and corrects the sourness; while to the clayey and sandy lands, it has an effect entirely opposite, one to the other, and yet performs an important service to each. It makes the clayey more friable, while it makes the sandy more adhesive. As a general rule, it is applied after being slacked; spread broadcast upon the land varying from 25 to 100 bushels per acre. It is best to apply it near the surface, because it is inclined to sink into the sub-soil—better to put on light coats, and more frequently, than very heavy one.

Sometimes when spread broadcast upon grass it does well, but the more common practice of using it on inverted sod for corn, and on summer fallows, is undoubtedly the best.

Marl, when accessible, may be used for the same purposes as lime, is indeed the same thing, only containing an admixture of earthy matter.

Wood ashes are in too common use to need more notice taken of them than to rebuke the careless, indifferent practice of farmers in suffering them to be forgotten and wasted. They are very profitable as a top-dressing to grass lands, young grains, potatoes, turnips, peas, beans, &c.

Gypsum, or more commonly called Plaster of Paris, is composed of sulphuric acid and lime, and ranks foremost among the manures for red clover, peas and beans. Sandy soils, or gravelly clay, show a much better return from the application of plaster on clover than most others, especially muck soils. These muck soils are advantageously manured with wood ashes, while the sandy, gravelly ones show but little benefit therefrom, as a general thing; there seeming to be an opposite effect on the clover by the application of these manures on the same soils. From forty to one hundred and twenty pounds per acre is frequent, and varies as circumstances require. As a top dressing to young corn, potatoes, and turnips, it is frequently profitable.

Common salt, (*muriate of soda*), has not been in general use sufficiently to speak experimentally of its profitable application. The coarse grass of the

marshes along the sea shore is relished highly by cattle, and we have no better reason to assign than its impregnation with salt from the sea. Asparagus, as all gardeners are aware, requires it, when grown to perfection. The elements of salt are some of the constituent parts of many other crops, but no better way can be devised than for farmers to move cautiously in its use. If the produce of our wet, marshy grass lands, by reasonable expense, can be rendered more nutritious and palatable, we have certainly obtained an important object. The refuse of pork-packing establishments, fish brine, &c., certainly would form an important element of our compost heaps. Then save it. Indeed, in laying down some general rules for our government, the first should be, make and save all you can; the second, guard this against loss by too much fermentation, leaking away by rains, or imprudent mixtures in composting; third, use care in preparing and selecting such manures as the kind of crops you design to grow naturally require—for instance, crops you design to ripen in the fall should have long, coarse, unfermented manure, while those that ripen during the summer require that which is already fermented and will directly contribute to their growth. Fourth. Be cautious of losing by evaporation; when hauled and scattered, should be plowed in soon, or incorporated with the soil by thorough harrowings. The unfermented should be covered deep enough to keep moist, so that it will gradually ferment as the crops require it, while the fermented should be applied near the surface as it will work downwards. Again, the first roots of the crops are short and should be fed immediately—not compelled to travel by slow growth without it, or in its search.

Farmers, like sinners, know their duties much better than they perform them, especially in regard to common manures; and when, like them, they find their salvation depends upon their own exertions, though a salvation of a temporal character, they will eagerly lay hold of the means before them, and manures will, in a manner, become their text book.

Preaching, on this subject as well as some others, has of latter days far exceeded practice—has had more or less of error mixed with it—but a ray of hope cheers the "Young America" of agriculture on, for a brighter day is coming.

ON DITCHING AND DRAINING.

BY R. J. GATLING, OF MARION COUNTY.

The art of freeing land from prejudicial moisture, may be considered among the most important branches of agricultural science.

The subject of ditching and draining, may to many, seem simple and easy, yet upon few subjects have men of science differed more widely than upon the best means and methods of draining land. Were all soils alike, and did all lands become wet from one and the same cause, it would be an easy matter to adopt a system of drainage upon which all might agree, but such is not the case.

In order to possess a thorough knowledge upon the subject, one should be a good geologist, and also be skilled is hydrostatics and hydraulics. A less amount of information on the subject, however, will be of great value to every practical farmer.

While all farmers will admit the utility of drainage, yet few, comparatively speaking, understand and appreciate fully its advantages and true theory. If farmers knew and understood *why* and *how* an excess of water injured land, and why draining makes the soil productive, they would be, no doubt, induced to engage more extensively in such improvements, and not suffer so large a proportion of their best lands to go to waste, or remain wholly unproductive.

The philosophy of draining is simply this: *Air* and *heat* are essential agents in preparing the food of vegetables which is deposited in the soil; these elements are, also, necessary for the healthful development of all cultivated plants. These life-giving agents, are in a measure, excluded from the soil by an excess of moisture. The temperature of a soil constantly saturated with water from beneath the surface, seldom exceeds fifty or sixty degrees during the summer months, hence the grain and other crops which require a heat of eighty degrees or more to bring them to perfection, can never thrive in such damp and cold situations, where they find neither the warmth nor the food necessary for their support. But by properly draining the soil, it becomes light and porous, and pervious to solar and atmospheric influences, and the process of vegetable decomposition is hastened, and a high state of fertility is developed. The presence and influence of the air in and to the soil is as yeast to a loaf of bread.

When land is well drained, the water, which falls upon the ground does not remain to stagnate, and to produce its poisonous and baneful effects, nor does it run away over the surface, washing off the best of the soil, but sinks gradually down, yielding to the roots of the plants all the fertilizing matter which it may contain, and as it descends air and warmth are imparted to the soil. Under such influences fermentation and decomposition is hastened, and the preparation of compounds, which are fit for the sustenance of plants, go on rapidly, and the soil being warm and sufficiently dry, the crops grow as by magic.

It is a curious fact, that soils that are deeply and thoroughly drained, stand the drouth much better than before draining. The reason is obvious. The plants are enabled in well drained soils to send their roots much deeper in the earth in search of food, without finding anything injurious. The soil also being porous, imbibes moisture from the atmosphere in dry seasons.

Before the work of ditching and draining should be commenced, the nature and situation of the soil should be fully ascertained, and also the *cause* of the wetness of the land. As a general rule, all soils that are of a porous nature and are wet from springs, should be drained by deep ditches and under-drains—constructed as hereafter described—and all tenacious or clayey soils, that have become wet from rain water, or from water that flows from higher grounds, should be, in a majority of cases, drained by surface drains or open ditches. The kind of drains and the extent of the drainage should also be determined by the situation and value of the lands. Lands situated near large cities and which are very valuable, would pay well to be *thoroughly drained;* while a less expensive system of drainage would be better suited to poor or less valuable lands. There is, however, no part of the

United States but what money expended in draining will yield a fine interest or income on the outlay.

Lands, generally, become wet, or moist, from one or more of the following causes:

1st. From rain water, or other moisture deposited by the atmosphere on the surface.

2d. From water which flows from higher grounds, and which is retained on the surface by inequalities, or elevations, where it is compelled to remain until it evaporates.

3d. From springs, which have their sources in more elevated regions.

4th. From water-courses, which cover the surface by overflowing or by saturating the soil.

If lands have become wet from the first of these causes, and the soil or layer of vegetable earth is of a tenacious or retentive nature, open ditches, or surface drains should be used. If under-drains are constructed in such cases, the water cannot penetrate through the compact earth into them. Wherever proper attention has not been paid to this matter, under-drains have been found useless or of little utility. If covered drains are attempted, the land should be first plowed and pulverized to the depth of the drain so as to lessen the capillary attraction and to allow the free passage of the water down through the loose earth to the drains. When open ditches or drains are adopted, they should be made in that direction in which the declivity of the land is most perceptible; or in other words, in the direction which will be most likely to carry off the water in the quickest and best manner.

Many low and flat lands, where little fall can be obtained to drain them, may be freed from excess of moisture by being plowed so as to throw the land in beds so that each furrow, between such beds, may act as a drain. The beds should be so formed that their centers may be the highest, with a gentle slope to the furrows. The drains thus formed between the beds, should be united with larger drains or ditches. Care should be taken, especially in wet seasons, to see that all the drains and ditches are kept open, otherwise they may become obstructed with trash, &c., and be of no utility whatever.

The second cause of lands becoming excessively wet is usually to be met with in valleys that are surrounded by high lands, from which the water runs down and sinks into the soil, or settles on the surface and forms ponds or marshes. It is exceedingly difficult to drain such lands when they have no fall or outlet to which the water can be taken to. The only hope is found in boring holes, and in sinking wells, or pits, down to the under strata of soil, which is often found, in such situations, to be of a sandy or porous nature, and which will allow the water to sink down into the same, and thus free the land from excess of moisture.

Before commencing to drain soils of this character, a careful examination should be made to see if the under stratas of earth is saturated with water. Should such be the case, there is little hope of profitably draining or reclaiming the land, unless it be by constructing many ditches and pits to hold the water, and by elevating the surface with the earth taken from said pits or ditches. Such a method of draining would not justify the expense, only in cases where the lands are very

valuable, or where it would promote the health of families living near such situations.

Lands that have become wet from Springs.

In a majority of cases, springs are formed in the following manner. The water deposited on the sides or summits of hills or mountains, sinks, according to the laws of gravity, perpendicularly through the superficial porous earth until its descent is retarded or totally obstructed by some impenetrable substance; it then becomes dammed up and is forced to filtrate slowly over this layer, or open for itself an outlet at the spot where the bed rises to the surface of the soil, and should it not find any channel here, it gushes forth in the form of a spring, and when a quantity of porous earth is collected at the point where the impenetrable bed ends on the declivity, or at the bottom of the hill, the water sinks into it and renders the ground damp and marshy. On the slopes or foots of hills, the water does not usually flow directly over the horizontal or inclosed layer of impermeable soil which prevents it from sinking into the earth. At the lower part of nearly all hills a primary layer of argillacious earth is found, which becomes gradually thinner as it approaches the summit of the hill, and thicker towards the foot. The base of hills and mountains, is also generally found to be surrounded by a bed of argillacious clay of greater or less depth. The water which sinks into the porous earth above becomes enclosed between the permeable layer and this primary strata of clay, and a reservoir is formed which incloses more or less water. In such cases the water does not present itself on the surface at once, but oozes through the said impermeable layer and saturates the upper bed of earth, which is in most cases of a spongy or marshy nature.

The springs, or the places where the water passes out from the clayey layer, is often higher up than the spot where the moisture begins to show itself on the surface. In order to drain effectively lands of this character, a ditch or ditches should first be dug down to the upper clayey stratum, then this stratum of earth should be penetrated by digging or boring holes in the bottom of the ditch, deep enough to reach the sandy or gravelly reservoir, so as to give free vent to the water, which will gush out through these holes into the ditches which will convey the same to some brook or river. This method of drainage was discovered accidentally by Elkington in the following manner. "He was standing upright in a ditch which he had caused to be dug for the purpose of draining the surrounding land, and which had turned out wholly inefficacious, and in his vexation he struck the ground with an iron crow bar which he happened to have in his hands; this pierced through the layer of clay, which had previously been rendered thin by the excavation of the ditch; in an instant water gushed through the hole thus made, with such force and rapidity as to compel him to retreat precipitately from the ditch. When he saw the effect produced, he made other holes with a boring augur, and by this means soon drained all the surrounding land." The discovery made by Elkington gave him great celebrity, and pointed out the means of draining effectively a large quantity of lands which had been, previous to his discovery, considered almost impossible to drain. Cases like the above frequently present themselves in the United States, especially in hilly or mountainous regions.

There are few men acquainted with ditching but what have often seen the water rise up from the bottom of newly dug ditches. By the means of ditches, thus pierced with holes at their bottom, all the land above their level for a considerable distance may be drained, and all those springs which show themselves on the surface got rid of, provided they communicate with each other by means of those veins or beds of porous earth heretofore spoken of. The holes formed with the augur do not easily become filled up, but on the contrary become enlarged by the action and passage of the water. In some cases the springs may be cut off by the construction of head ditches, but in all cases where boring is not resorted to, the ditches, or drains, should be sunk below the upper impermeable strata, so as to let the water from the reservoir or porous bed of earth beneath.

Soils that have become wet or moist from Water Courses,

Which occasionally or permanently cover the surrounding lands with water, either by overflowing it, or by saturating it, may be freed from such overflow or excess of moisture, by recourse being had to the construction of dams and by suitable ditches and drains. The mode of constructing dams is now well known, but unfortunately such works are often formed without skill, and frequently fail to accomplish the end designed. In the construction of dams, great care should be taken to see that the earth is made firm and solid, and also that sufficient space be allowed for the passage of the water. Ditches should be constructed between the dams and the high ground, to collect and take off the water that falls and accumulates within the inclosure. These ditches should have an outlet under the dams, so as to let out the water, and should also be furnished with a kind of door or valve which the water in the river or stream will close as it rises.

The Mole-Plow—its value in draining.

Wet prairie lands and other soils that are free from roots and other obstructions can often be drained by instruments termed mole-plows. Such implements have been used within the last few years, in Illinois and other prairie sections, with much success. Lands, by this means, can often be freed from prejudicial moisture, at very little cost. Four or six yoke of oxen, with one of these plows, will make a ditch or drain as fast as the oxen can walk. The drains are usually made from twelve to eighteen inches deep, and it is said, effectively drains the land, and in most prairie soils, will keep open for a long time. This method of constructing drains, owing to its cheapness, is well worthy the consideration of farmers generally.

Under-Drains, and their mode of construction.

Various methods or systems have been adopted and a great variety of materials used, in constructing under or covered drains.

The nature, situation and value of the land, to be drained, should determine the system, number, and depth of the drains. The cheapness and convenience of the material at hand should also determine the kind to be used. If a farm, that needs draining, has plenty of rock and stone on it, such material should be used in constructing the drains; if, on the other hand, the farm should be destitute of such substances, but has plenty of cheap under-growth, or brush on it, such material might be substituted with advantage. Tiles and brick, are

also often used. In constructing the drains, the work should always be commenced at the lower end, then work up the drains, being careful all the while to get a slight and uniform grade. If the drains have too much fall, the rapid descent of the water will be likely to injure the same. The open ditches, in which the stones, tiles, &c, are to be placed, should be, usually, from two to three feet deep and from five to twelve inches wide in the bottom; when cobble stones are used as side stones, flat rock or slabs should be used for covers, when the same can be procured without too much cost. Some persons prefer using only one row of the cobble stones, believing that one row is less liable to become filled up than when two rows of the stones are used. The side stones should be from four to five inches in size, and the covers should lean against them so as to form a good throat for the passage of the water. The drain should then be covered and filled in to the depth of say one foot with smaller stones, and the whole covered with a little straw, or other similar substance, to prevent the loose earth filling up the drain. The cost of drains, as above described, is usually from thirty to fifty cents per rod. When tiles are used, the drains should be laid out in their appropriate places, and dug from two to two and a half feet deep and say from five to six inches wide in the bottom. The bottom of the ditch which is to receive the tiles should always be, if possible, hard earth; otherwise, the tiles may become misplaced and choked up. If the bottom of the ditch is composed of muck or quick-sand, planks or boards should be placed at the bottom of the ditch, on which the tiles should be placed to prevent their sinking or becoming displaced. The spaces around the tiles should be filled up with small stones, or other convenient material, taking care at the same time not to injure or misplace the tiles. Tile drainage is cheaper than drains constructed with stones. Drains made of tiles usually cost from thirty to forty cents per rod.

Drains filled with under-growth, brush, &c.—which material can usually be procured in most sections of the west conveniently—answer a good purpose, and cost much less than when tiles are used. Such drains, in most cases, keep open long after the brush, &c., have become rotted. Many persons suppose covered drains fill up and become useless soon. Such is not the case. When under-drains are well and properly constructed they keep open for a long period. Under-drains have been made in England of brick, that were not larger than to allow a rabbet to pass along them, which have kept open for more than a hundred years.

All systems of drainage should be guided by observation and good judgment. Drains should be constructed where needed, and whenever their value will justify the outlay necessary to construct them. What may be called *thorough drainage*, and other expensive systems, as practiced in Europe, would not be practicable, when applied to most western lands, which are cheap, and which, from their rich and peculiar nature, require much less drainage than most soils in Europe. But there is certainly no branch of agricultural improvement more needed, or which would pay better, nor none that has been more neglected by the farmers of the north-western States, than that of drainage.

The physical aspect of the State of Indiana might be wholly changed, and the annual increase of her crops doubled, if all her surface were thoroughly drained. The draining the lands would also greatly improve the health of the State. It is poor economy in a farmer, who suffers a pond or marsh near his door to remain

undrained, and which causes him to pay a doctor's bill of one hundred dollars annually, when the pond or marsh might be drained for one half of such sum!

In England and Scotland, and in many other countries of Europe, great attention has been paid to the subject of drainage, and millions of pounds sterling have been expended, within the last quarter of a century, in ditching and draining, and no agricultural improvements have yielded greater profits than money thus spent. Lands, in England, have been frequently drained by tenants, whose only hope of reward in making such improvements was in the increased yield of crops which they might obtain from the lands during the terms of their leases. If tenants can afford to make such improvements on their landlord's estates, is it not reasonable to suppose that farmers owning their own lands would be greatly benefitted by making similar improvements?

Lands in the north-west, owing to the depth and consistency of the soil, are in a majority of cases easily drained. Nearly the whole of the surface of the State of Indiana is underlaid, at greater or less depth, with a strata of calcareous gravel or sand; and such being the case, together with the rich and porous nature of the soil, the lands admit of easy drainage. East of the mountains, and in many other sections, a great variety of stratas and different geological formations may be found in the space of one mile, which, if wet, require different systems of drainage. But such is not the case in the north-west. In the Mississippi Valley nature has been lavish and uniform in her bounties. Here she seems to have commenced and finished her work on the grandest and sublimest scale conceivable. In this land of streams and prairies, thousands and millions of acres are the same in quality and richness—and one simple and cheap system of drainage may be made to answer for the whole. One fourth part, no doubt, of the money that has been expended in draining the marshes and bogs of England and Scotland would be sufficient to effect the drainage of all the wet lands in the north-western States. The pecuniary profits derived from draining lands in England and Scotland have been variously estimated at from fifteen to twenty-five per cent. per annum upon the cost of the outlay; and such being the case, it is but reasonable to suppose that money judiciously expended for like purposes, in the north-west, would yield a much greater per cent., and at the same time the lands in most cases would be increased double in value.

Were the whole of the lands in the north-western States thoroughly drained, the produce of the gold mines of California would be insignificant when compared to their increased value of products. The writer is aware that the lack of capital, in the newer States, is a great drawback to drainage, but it is not, perhaps, such an impediment as the want of the just appreciation of the importance of the subject or the need of a *will* to commence such works.

If the legislature of Indiana were to loan or appropriate the entire sinking fund of the State to be used and applied exclusively to the works and purposes of drainage, it would be, no doubt, a wise policy, in as much as it would be the means of greatly increasing the productive wealth, beauty, and health of the State. Mortgages on lands drained with money furnished by the said fund would prove to be the best of security to the State

The English Government has done much to aid her subjects in making such improvements. Many private companies have also been formed in England—com-

posed of men of wealth and public spirit—for the sole purpose of loaning to land owners means to drain their lands. Such a policy and such acts are worthy of imitation. There is not a citizen in Indiana but what is interested more or less in the subject, in as much as the draining the lands will greatly promote the health of the State.

Draining is certainly one of the great secrets of successful farming. The science and true theory of drainage should therefore be understood by every practical farmer—one idea, or the knowledge of one single principle in agricultural science, may be worth thousands. All farmers know that too much or too little moisture in the soil injures the crop, but few know the true philosophy of drainage: that is to say, why it is that lands that are well drained do not suffer from drouth, and are so productive. The importance and advantages of draining consist not only in letting the water out of, but in letting the air into, the soil. If the spaces or interstices between the particles of the soil are filled up with water of course the air will be excluded; but if the water is drained off, the air will occupy its place and will act on the particles of matter in the soil, making the same soluble, and causing the earth to become mellow and porous. The union and chemical action of the air with the different ingredients of the soil produce heat, and the result is, a rapid decomposition of all substances contained in the soil. The air, penetrating the loose earth, keeps the land moderately moist, that is to say, imparts to the soil just enough moisture to be sufficient to favor and accelerate decomposition and putrefaction. The greater and quicker the change and destruction of the particles of matter contained in the soil, and which serve as food for plants, the greater will be the amount of food manufactured, as it were, for the plants, in a given time. The vigor and development of plants always depend upon the quick and abundant amount of food furnished to them during their growth. Every farmer must have observed that wood and other substances decay much faster when kept moderately moist, or in an alternate wet and dry state, than when kept in either a very wet or very dry state; so it is with the constituent elements of the soil, in which there is little change, unless when they are in a moderately moist state, and when *exposed to the influences of the atmosphere.*

The above theory will also serve to give the farmer an idea why it is that deep plowing and often stirring the soil increases the growth of the crops.

Much more might be added, but enough has been said, it is to be hoped, to convince farmers of the great importance of draining their lands.

FENCING AND HEDGING.

BY WILBUR F. STONE, OF PUTNAM COUNTY.

In presenting to the honorable committee on essays in this department of agriculture a short treatise, to be honored with their consideration—an essay which shall contain some practical thoughts, on a plain, practical subject—it will be hardly expected that the author should indulge in a rhapsody, or grow poetical on so prosy a subject as that of fences. And yet there is nothing in a rural country which may be either more pleasing to the eye or more offensive to the sight than its fences. Their beauty is, of course, comparative, as there is no such thing in nature as a fence; but since it is found necessary in civilized countries, it takes on either beauty or deformity, and becomes either an ornament or a blemish on the face of a country. The beauty of a fence, however, unlike many other things, depends on its utility or adaptation to the purpose for which it is made.

In going over an agricultural district, no object strikes the eye with more prominence than the lines, cross lines, and intersections of fence which bound and mark out the farms that spread out before the view. Indeed, I regard a fence as a better index to the character of a farmer than all the phrenological bumps that may cover his cranium. A man who will surround himself with a low, irregular, crooked fence, full of pig holes, with briars and bushes growing in every corner; and who will pass by his own or his neighbor's field and see a gap thrown down here, and a rail or board knocked off there, without ever stopping to mend it, may be set down as a man of rather small caliber, take him all round, and calculated, least of all, to become a successful farmer.

What an outrage upon our appreciation of the beautiful, and how it shocks our sense of propriety, to look upon a badly cultivated farm, deformed by ill-conditioned fences (for the two usually go together), running in shapeless zigzag lines, so crooked that you cannot tell how many acres there are in a field—so low and broken as to tempt all virtuous cattle to sin, and offers a free license to all foraging swine to "walk right through,"—that is, if the fence is not so crooked that in trying to crawl through they come out, like Muggins' sow, on the same side.

On the other hand, what is more delightful than, traveling through a rural district, to see farms laid out with regularity and taste; the fields inclosed with good, nice fences or hedges; the prospect marred by no such unsightly objects as tottering posts and broken gates; the landscape diversified with field and meadow, orchard and garden, all mapped out by *good fences*, running in straight lines, over hill, through valley, and across plains—checkering the view with their regular intersections, and conveying to the mind ideas of beauty, thrift, and comfort.

Few writers upon agriculture have discussed the subject of fences, and especially here in the west. In this State little attention has hitherto been paid the subject, aside from the ordinary mode of rail fences. The chief reason of this is that, in this wooden country, where timber is plenty, there has been little necessity for economy in the plan of fencing, and the primitive rail fence has been used both

for cheapness and convenience. But in many localities, especially the older settled and open parts of the State, fencing timber is becoming somewhat scarce, the old fences are decaying, and the question now arises, what shall we do for fences in the future—how shall the farmers of Indiana construct their fences so as to combine these three requisite qualities—*cheapness*, *utility*, and *durability*—in other words, which is the cheapest and best kind of a fence?

Keeping this question before us, I shall offer a few thoughts and suggestions upon the subject as the result of my own observations and researches.

First, then, of fences. The third requisite above mentioned, and upon which the utility and consequent cheapness depends, is *durableness*. Wooden fences will rot; and how to best prolong the period of decay is the chief object in construction. In regard to the common "worm" rail fence I have but little to say, as we presume every farmer is well acquainted with the mode. The rails should be laid up with the sap side down, and where they are crooked, with the convex side uppermost, to turn off the rain. The corners should be kept clear of all weeds and bushes, as the moisture they retain will soon cause a fence to decay. A good rail fence, well staked and "ridered," is perhaps the best that can be made. Rails will last much longer if made in the summer, when the bark will peel. Some men make fence altogether by the signs of the moon; but I have no faith in "lunarology," as it regards the decay or preservation of timber; instead of laying up fence "in the moon" I always prefer to lay it up on my farm.

The old fashioned post-and-rail fence costs too much labor to be generally used; mortising posts and sharpening rails is a tedious job; it will last no longer than a rail fence; takes nearly as much timber, and costs nearly four times the labor. The board fence is coming into use for farm fencing to a considerable extent, particularly in the prairies and open portions of the country, and is, in the absence of good rail timber, the cheapest and best kind in use.

The most plentiful timber we have in the State that will do for fencing is poplar, and this, with good oak posts, makes a good, durable fence, needs little repairing, and will last a long time. Another advantage in the board fence is, that you can plow close to it and keep away the vines and bushes with much less trouble. Most of the farms in northern Illinois are fenced in this way. Their timber is short, but makes very good split posts, while they use pine boards brought by railroad from the pine forests of upper Wisconsin and Minnesota. Few hogs are raised, and for cheapness the fences are made with only two or three boards at the top of the posts.

If our Indiana farmers would take a hint from this, and raise fewer hogs and more cattle, they would find themselves gainers by the system. But an objection to board fences is that the posts will rot off at the ground long before the rest is decayed, and unless you have durable timber the ultimate cost will lie in the way of their use. Well, be this as it may, when our good rail timber is gone we will be necessitated to use board fences, or some other kind perhaps equally costly, if as serviceable. The chief difficulty, then, to be overcome is to prevent or retard the rotting of posts. I will submit to your consideration a mode of setting posts which I think will be of much service in this particular, as I presume it is not generally known and practiced. The plan is this: let the holes be bored with a post auger, if possible, about three inches in diameter, *larger* than the bottom of

the post; place a small flat stone or a few brick bats in the bottom, then set the post in the center of the hole, resting on the stone, and fill up the hole around the post with *lime mortar*. The ground around the post outside the mortar should then be pounded down with a rammer for that purpose, to insure compactness. The mortar may be mixed up with any coarse sand, gravel, or even small pebbles, and will cost a mere trifle—a bushel of lime being sufficient for six rods of fence.

The rotting of timber in the ground is caused by the absorption of moisture in the pores of the wood. Now the advantages of the above plan are these:

1. This mortar will soon form a kind of cement, nearly as hard as stone, and will completely exclude all water from the post.

2. It will cause the posts to stand twice as firm as in the ordinary way of setting, thus preventing the fence from soon leaning.

3. The lime acts on the fiber of the wood as a powerful antiseptic, so as to postpone for an indefinite time the decomposition of the timber.

All have noticed the toughening, solidifying process which wood undergoes when saturated with lime water, ley, or other alkalies, as may be seen in old ash hoppers, soap barrels, &c. This observation, several years ago, led me, after numerous experiments, to try this plan of setting posts, which I have found successful. Posts set in this way will last longer than when pitched, and with one-fourth the cost. I have recommended this method and seen it tried with success in Iowa, where I lived some years ago, and I have also tried it in this State on various kinds of timber, particularly on the less durable sorts. For example *poplar*, posts of which set in the mode I have described will, I am satisfied, last as long as oak posts set in the ordinary way; and even beech posts, seasoned before they are set, will in this way last equally well. I have on my farm about forty rods of fence with poplar posts, set in mortar four years ago this summer, and they are now as sound as ever.

A cheap and durable paint or whitewash for fences may be made by taking one half bushel of unslacked lime, place it in a large kettle, and slack with hot water, covering it in the process; then add one half peck of salt, two gallons flour paste, and one half gallon of pitch; add water till the whole is about the consistency of cream, heat to a boil and apply while hot, with a whitewash brush. This quantity will cost eighty cents, and will paint forty or fifty rods of fence. A good coat will most effectually protect timber from weather, and will last nearly as long as oil paint. The nails for making fence should be, before using, boiled in linseed oil, of which they will absorb so great a quantity as to entirely prevent from rusting. An ordinary board fence will cost from 60 to 80 cents per rod, while one built and painted as I have shown will last twice as long, and if made with poplar posts will cost about one-third less; and I would respectfully recommend this mode of fencing to your consideration.

In general, I would recommend fencing off in large fields—it saves fence, and several sorts of grain may be raised in the same enclosure without detriment. A cheap cross fence, however, one that will turn large animals, may be made by setting posts about nine feet apart and nailing on two boards at the top, one foot apart; or, what is better, have the posts about three feet high and then stake and rider the fence with rails.

In very stony parts of the country, where rock is plenty, an excellent fence is made by laying a stone wall two feet high, then about three rails on top of that, staked and ridered; or set posts at the proper distance and build the wall around them, then nail on three boards above; the wall will thus hold up the posts long after they have rotted off at the ground.

In concluding my remarks on fences, I can but express my regret at the great injury which is often done to our country by the improvident and unnecessary waste that some men make of our timber. We cannot be too economical in the use of this valuable possession. Our forests constitute, aside from the soil, our richest and most beautiful inheritance. Upon them depend our comfort and happiness. They are fast passing away before the ringing axe and crackling fires of the woodman; and the time will come when the inventive genius of man will be put to the rack—when *mother necessity* will have to give birth to inventions by *twins* to supply its want, and when our country will learn to lament the spoliation and ultimate *end* of that whose loss they might have prevented or replaced by proper care and foresight.

I come now to speak of hedges, the different varieties, and the method of growing them. The experiments in this State upon hedging have been comparatively few, and limited for the most part to door-yard or garden enclosures. Where, however, the test has been fairly made it has proved very successful. My knowledge, however, on this point, is limited chiefly to my own observations and those of a few with whom I have conversed, as the agricultural reports of the State are very meager on this subject. The first species of plant for hedging which was tried to any extent in the United States was the haw, or buckthorn. The poets of "merry old England" have associated with her rural homes, her green lanes, and hawthorn hedges, "from which at morn the Philomela sings;" and indeed her green hedges, stretching away for miles and crossing with all the precision of a chess board, and especially in the spring when they are in snowy bloom, present a most delightful appearance. And I do not know why the thorn could not be cultivated in most parts of this country as well as in England. The English hawthorn, however, is found to be not well adapted to this country, owing to insufficient moisture of climate and other causes. But there is another very similar variety of the thorn called the buckthorn, which makes probably the best hedge in this country. It is the hardiest kind for our climate, makes the firmest fence, and needs less clipping than most other kinds. The plants can be got for from $5 to $6 per thousand, at the nurseries; or you can buy the seed and sow them as you would peas, and after they have grown one year in the rows, transplant them into a hedge. To plant the hedge, clear the ground of all rubbish, plow the space three feet wide, and deeply, running the plow twice in the same furrow, and give it a dressing of manure from the barn-yard. The plants should be set in a double row, six inches apart, not opposite to each other but alternate. This plant will grow in any soil, makes a thick hedge, with very little time or labor, needs clipping but once a year, and this may be done when the leaves are off, or when the farmer has least to do. Besides, it is less liable to be attacked by disease, insects, or vermin, than any hedge in our knowledge, and may be raised from seed as easily as peas. It is a little wanting in thorns when young, but gets stiff enough to turn cattle when it has been sheared three or four years. It makes the hardiest and best farm

hedge, taking into account its easy cultivation, durability, and adaptation to a variety of soil and climate. It is used to a great extent in some of the eastern States and in some portions of Ohio.

The Osage orange next claims our attention. This plant is used more than any other kind in the west. It however requires a pretty good soil, and is not well adapted to a latitude further north than the peach ripens well, though it is made much hardier by shearing well when young. Its growth is very rapid, and, in this climate, is well adapted to hedge fencing. It is used largely on the prairies of Illinois and Iowa, where it is rapidly taking the place of other modes of fencing. The Osage orange is much the cheapest kind of hedge; you can get the plants ready for setting at the nurseries, or buy the seed and sow it yourself. It should be sown in drills about a foot apart, and should be hoed and weeded well. April is the best time for sowing. The next spring they may be transplanted for the hedge. The ground should be plowed or spaded eighteen inches deep, and where the soil is poor a dressing of manure applied. After they are set, they should be cut off within two inches of the ground. The ensuing season they should be clipped to within a foot of the ground; the next year two feet, and so on till they have sufficiently attained their growth. In raising hedges, the great point is to get *breadth at the bottom.* It is very easy to get a hedge high enough, but if you let it run up without clipping, so as to make a broad and thick base, you can never make that base broad and thick afterwards. Shorten back, therefore, till you achieve what you want at the bottom, and the top will afterwards take care of itself. The advantage of planting two rows in a hedge is to secure thickness at the bottom; but in good soil, with strict attention to cutting back the plants the first three years, a single row will answer perfectly well, setting the plants from six to eight inches apart. If you plant along side a fence, you must allow at least two feet between the hedge and your fence, or the branches will not grow thick on the side next the fence.

Another mode of setting the Osage I have seen in the western prairies, which I deem worthy of recommending. It is to dig a ditch about two feet deep, throwing up the dirt on one side so as to form a ridge or bank about three feet high. The Osage is then planted on top of the ridge and cultivated in the usual way. The ditch and ridge will make a very good fence until the hedge has attained sufficient size. The water in the ditch will supply plenty of moisture to the plants.

Some object that the Osage orange will impoverish the soil on each side of the hedge. This is not true so far as I have ever been able to learn. A second objection is that you cannot drive a team near it while plowing. This we consider its greatest merit. We do not want hedges that horses and cattle can at pleasure eat, trample down, and break through. We can plow within two or three feet of any well kept hedge, and that is near enough. Another objection is the expense of trimming; but this is not so formidable an objection as might be supposed; for by taking the hedge in the right time one man can easily clip 600 to 700 yards in a day.

There are several other kinds of plants used for hedges but of inferior merit. The Siberian crab makes a very good fence, but is of slow growth and requires much care. The American holly makes a very beautiful hedge for screens and ornamental fences. The water beech, locust, and some sorts of willow have also

been tried, but as they are not generally used from inefficiency of growth and other causes, I shall not notice them further in the present essay.

I will conclude by saying that I like the Osage orange, considering its cheapness and adaptation for hedges in Indiana, better than any other, and I hope to see it soon come into more general use among our farmers, as making a decidedly cheap and good fence.

ON FIELD FENCING AND SHADE TREES.

BY OLIVER ALBERTSON, OF WASHINGTON COUNTY.

Some English traveler who was struck with the contrast of American fencing and English hedging, after some calculations, has said that the cost of the common rail fences in the United States would amount to more than all the circulating specie. This seems, upon first notice, to be a sweeping and untrue assertion, but reflection and examination would soon convince any one that in reality there is more truth in it than the remark has credit for.

Not designing to enter into an investigation of the correctness of the remark, I will pass it by and simply ask my readers if they have ever taken pencil in hand and made any calculations of the cost of common rail fences, and most especially the relative cost of fencing differently shaped and sized fields? If not you will be surprised at the labor you have *unwittingly*, and, had you observed properly, I could say unwillingly spent in making rails and building fence, besides other inconveniences attending it.

Indeed, were any of our mechanics or manufacturers in this age of progression to submit to such a waste of material and labor in their respective vocations, as I shall presently show the farmer many times to be guilty of, they would soon find that instead of mastering their business it would master them—a just return for neglecting the use of their mental faculties in combination with their physical. Labor and material with them is most scrupulously economized—observation, calculation, and experiment teaches and guides them in everything connected with their business. If it is their interest—the very thread upon which their existence hangs—so to do, how can we account for such a lack on the part of the farmers? It is want of energy, of action, of mental as well as bodily exercise—it is going to mill with a stone in one end of the bag.

Farmers generally have from 100 to 160 acres each—their cleared land divided into eight or ten fields of from seven to fifteen acres per field, in all manner of shapes, suiting the fancy of the owners, many times, perhaps twice as long as broad. Now let us take, for instance, a field of 10 acres—it would be 40 rods square, and to make a ten-rail fence around it, calculating two pannels to the rod, (the common rule), there would be 3,200 rails used, and to mark it off in corn

rows, four feet asunder, there would be 165 each way. Now, suppose we have another field 80 rods long and 20 rods wide, it would contain 10 acres also; but with the same calculation for rails as the other per rod, it would take 4,000 rails, leaving a balance of 800 in favor of the square field; and to mark it off the same distance for corn, there would be 330 rows the short way—as much turning as there would be in plowing the other both ways. The cost of making and putting up the 800 rails, could not, on an average, fall below $12.50; this to each of the six fields, were they thus arranged, would make an aggregate of $75; which, if compounded for 35 years, (a span of life many farmers are allotted for practical use), would amount to more than $500—not to take into consideration the great loss in repairing this extra fence every six years.

In making this estimation, we do not expect to find a farmer, without a chance, just to fill this supposed case, but that there are many who approximate to this without once thinking, there is no doubt, and of them we ask reflection for their own interest and the character of their profession.

Many times too much labor is lost in making fields unnecessarily small, putting two or three fields in the same kind of grain year after year, when they might with propriety make them larger and have a regular rotation for each field. Now, the increase of rails is not in proportion to the increase of acres. A field containing 10 acres, as before stated, would require 3,200 rails, while one of 15 acres would take but 3,920; the field being increased one third, the rails would not be by the number of 346—a gain worth considering; for we also have less locks to build, keep clean, and repair, and in six fields the amount of labor lost would be of importance; and to make the matter more striking we should only have to make the field forty miles square to inclose as many acres as it would take rails.

As regards shade trees for fields, we think many farmers are pursuing quite as suicidal a course. It is commonly the case that we see at least two trees left in each field for shade—perhaps the black walnut, or what is worse, frequently, the wild cherry, an especial resort for caterpillars. Now, when queried into, he tells you he wants shade, and left these kind of trees, expecting to get remunerated by making use of them as timber when suitable; but the truth is they grow low and full of limbs in an open field, and are comparatively worthless, and all the ground they shade, which on an average would be about eight hills square of corn, (two stalks to the hill and one ear to the stalk would make 256 ears, or 2½ bushels of corn, on an average worth 75 cents), would be a certain annual loss, in the six fields, of $9.

The remedy is at hand and admits of no doubt as to the result. Let good qualities of winter apples be selected, plant and guard these trees (taking pains to secure straight, long trunks,) while young, and in five years after planting, if you then take an average for 25 years ahead, according to past experience, you may safely calculate on an average of 10 bushels per year to the tree—worth certainly, in any market, 25 cents per bushels. To sum it up, it would be $2,50 per tree, $5 per field, and for six fields $30 per annum. Now, deduct 50 cents per tree for attention, and the net income will be $24, and your shading purposes answered. Surely a strong hint for all to examine for themselves, if they are not already satisfied that they are suffering much loss by this neglect. On first thought some might say they would be injured by stock; but proper training will prevent that,

while selecting winter apples will give no encouragement to depredators to come in your fields, as they would not be palatable before gathering.

We have presented these matters in detail in order to show the farmer more strikingly that he is suffering loss, fully believing that the *pocket* in business men is the most vulnerable point of attack, a ready avenue to introduce reforms or eradicate errors. As before remarked, observation, calculation, and experiment are the means resorted to by thrifty, business men, in order to establish the fact—if their business is already profitable—if there can be any reforms introduced to make it more so—indeed, to ascertain if there is any friction anywhere, and if so to remove it. That the farmer is sadly deficient in these respects is too true; and should a few active minds be turned or directed in the right channel, the object of this article will be gained.

ON THE DAIRY.

BY DR. R. T. BROWN, OF MONTGOMERY COUNTY.

The primary product of the dairy is MILK, from which is manufactured cheese and butter; two articles of very considerable importance to every agricultural community.

The milk of the ewe and goat is extensively used in some parts of Europe, Mexico, and South America; while the mare's milk among the Tartars, and the camel's, with the Arabs of the desert, are indispensable articles in the domestic economy of those tribes. The dairy products of this country, as well as the Anglo-Saxon race elsewhere, are derived almost exclusively from the milk of the cow.

In the establishment of a dairy the first consideration is the selection of stock adapted to the purposes of the dairy. But few importations have been made into the United States, and none I believe into Indiana, of cattle with a specific reference to their value as dairy stock. Rapidity of growth, size attained, symetry of form, and facility of fattening, have been the chief points in cattle breeding in this State. A few dairy importations have been made to western New York, New Jersey, and northern Ohio, and much attention has been paid to the improvement of our common domestic stock in milking qualities in many sections of the country. In Europe, and especially Scotland, Wales, and some parts of England, dairy stock is held in high esteem. As a general rule the smaller races of Scotland and the Orkney Islands, give richer milk than the larger English cattle. Of these last perhaps the Devons are the best milkers, but even they are held to be inferior to the Ayrshire, Alderneys and Holderness breeds, though the latter seldom attain a gross weight of more than five or six hundred pounds, while the Devons are often more than twice that size.

Prof. Johnson gives us the following very interesting results of a series of experiments made at Bradley Hall, in Derbyshire. The cows were fed on the same pasture and fared in every respect alike, and gave the following yield per day as the mean quantity for thirty days:

Holderness cow gave 29 quarts of milk—38 ounces of butter.

Alderney cow gave 19 quarts of milk—25 ounces of butter.

Ayrshire cow gave 20 quarts of milk—34 ounces of butter.

Devon cow gave 17 quarts of milk—28 ounces of butter.

The small Shetland cows of the Orkneys and north of Scotland, have been found to give a greater yield both of butter and cheese, in proportion to the food required, than any other race of cattle. I doubt not but that the bestowal of a little care to the selection of individuals from among our common stock, and breeding from them with direct reference to their milking qualities and dairy value, would result in an *Indiana breed* of milk stock that might rival the Ayrshire or Holderness. Much, however, depends on the manner of keeping, kind of food, and general treatment, if we would correctly estimate the dairy value of any cow. If quantity of milk, rather than quality is the object of the dairy man, which is the case in the vicinity of our larger cities, then the cows should be fed in summer on the tenderest and most suculent grasses, and in winter on turnips, carrots, beets, and other root crops. With this treatment, though the quantity of butter and cheese will probably be less than that yielded by dryer food, yet the number of quarts of milk will be materially increased. Corn sown broadcast, and cut for cows during the hot and often dry months of Autumn, will be found of great service, not only in increasing the quantity of milk, but in improving its quality. If, however, the object is more to secure an abundant yield of butter and cheese, than mere quantity of milk, then an ample supply of corn meal, oats, shorts, or oil cake, should be fed. Care should be taken, however, in the use of oil cake that the peculiar odor of the linseed be not communicated to the milk, and consequently to the butter. This will inevitably be the case if the cake is fed alone. Mixed with boiled pumpkins, or any of the root crops, this difficulty is much less liable to occur. We should, however, bear in mind, that milk, and its products, are always more or less effected by the peculiar properties of the food on which the cow is fed. Onions and leeks communicate their peculiar flavor to the milk, and a clover field in full bloom may be detected in the odor of the butter made from cows fed upon it. Saffron is said to be fed to cows in some parts of Holland to give a yellow color to the butter, and madder, when mixed with the food of a cow, will give a red tinge to the milk. If we would have good milk and make fine flavored butter and cheese, it is of the first importance that attention be paid to the food of the dairy stock. Of all the grasses that have been experimented on as food for milch kine, none gives a richer cream or finer flavored butter and cheese, than the blue grass; but if the dairy farm be of a moist, porous character of soil, the red top will be found better adapted to it as a pasture grass, and but little inferior in its milk-producing properties. A variety of grass, (the *Holcus Lamatus*), has lately been introduced from England by Dr. Stephenson, of Putnam county, that promises to furnish an excellent pasture grass. Should it endure our climate without degenerating, it will be an important acquisition to the cattle growers of the west. Clover as a dairy food has the objection to it, above alluded to—the butter retains the odor of

the bloom, which to some persons is very disagreeable. Grain should never be fed to cattle without first being crushed, and I have no doubt but that an apparatus for steaming the food where a number of cattle are to be fed, would be a profitable investment of capital. In feeding cows that give milk, we must not forget that they require more food to maintain them in condition, than animals that eat merely to supply the normal wastes of the system. If no more food is furnished to the milk-giving than to the dry cow, the deficit will be divided between a diminution of the quantity of milk and a reduction of the fat first, and afterwards of the muscle of the cow. A great saving of food may be made by providing warm and comfortable stables for cows during the long, cold and stormy winters of this climate. Every physiologist knows that the animal heat is kept up at the expense of the food taken by the animal. Now as the temperature of the blood varies but little between an exposure to the atmosphere at zero, and one at 100 degrees, it is evident that there must be a much greater expenditure of the material for generating animal heat in the former, than in the latter condition. If any cow enjoys a stable where the temperature does not fall below 40 degrees, while another is exposed in the open air to an atmosphere at zero, or below, this last will require 25 per cent. more food to maintain the same plight, than will be necessary for the other. To make even a wider difference than this, we need not demand so low a temperature as zero. A rain falling on, and constantly evaporating from the surface of an animal, though that rain should not be below the freezing point, will prove more exhausting on animal heat than a dry atmosphere below zero. Now as timber, and even bricks and mortar are cheaper than grain and hay, therefore cow stables must be a money-saving institution. Every dairy should be provided with warm and comfortable stables, adequate to the winter accommodation of all the stock kept. To all this it will be answered, "we cannot afford stable room for all the cows we must keep in order to maintain a respectable and profitable dairy." Our reply is, "sell enough of your stock to furnish comfortable stabling for the remainder, for if you have one cow more than you have stable room for, you have one more than you can afford to keep."

Crush all the grain you feed, steam it well and feed it in comfortable stables and you will be able to keep your stock in good order on half the food they would require if fed in the manner feeding is too commonly done in this country.

Pastures intended for dairy stock should have water—not stagnant ponds, but good wholesome spring or well water, accessible to the cattle at all times;—nor should they be compelled to travel all day, to pick here and there a scanty subsistence from large thinly set pastures. The summer pasture grounds should be divided into four equal lots, and these should be pastured in turn, about a week each, and suffered to rest three weeks. By such an arrangement, if the pasture is sufficient to the number of cattle kept, they will be able to procure their living without much traveling. The utmost regularity in the habits of the cows should be established and rigidly maintained. They should be milked at the same hours of the day, morning and evening, always in the same place, and as far as practicable by the same person; for the moral treatment of the cow, if I may be allowed the expression, has much to do with the secretion of the milk. Hence kind treatment and gentle measures are the only means to be resorted to in order to overcome any vicious habits that the cow may have acquired, and the cow that cannot be thus

controlled, should be the property of the butcher, rather than the dairyman. In milking, great care should be taken to milk steadily and as rapidly as can be done without giving pain to the animal, and to be certain that the cow is milked clean before the job is dismissed, for if any milk is suffered to remain, nature, whose wise economy never furnishes a superfluity of anything, will diminish the quantity secreted that amount. To furnish an ample supply of soda to the milk, dairy cows should be freely supplied with salt at least twice a week; or perhaps the better plan is to salt all their food in winter and allow them a moderate supply every morning in summer.

The raw material out of which all dairy products are manufactured, as we have said, is MILK. This, when fresh drawn from the cow, is a bland homogeneous fluid, of a white color, more or less inclining to a yellow shade, with a sweetish taste and manifesting slightly alkaline properties. But on standing at rest for a few hours, it exhibits its compound character by dividing into two parts—a thick oily mass on the surface, and the milk below, rendered more fluid and whiter in appearance, by the separation of the cream. But if suffered to remain still longer at a temperature between 70 and 90 degrees, another sub-division takes place by the coagulation of the milk and its ultimate separation into curd and whey. The following table from Henry and Chevallier shows the proportions of the proximate elements in milk. The figures are the mean of a series of experiments made by analysing milk from different cows, at every season, and fed on various kinds of food. They correspond very nearly with the results obtained by Boussingault:

Casein (cheesey matter),	4.48
Sugar of milk,	3.13
Saline matter, (chiefly soda,)	0.60
Water,	87.02
	100.00

These figures, however, must not be taken as absolute truth, but merely as an approximation towards it. For the proportions of the constituent parts vary in different breeds of cows, in different individuals of the same stock; and in the same individual they are varied not only by food, climate, and the season of the year, but by the length of time since calving, age, health, and general condition of the animal. But the difference between the milk first drawn and that last obtained, will be found to be greater than that produced by any of the foregoing causes. In a cow giving 12 pints at a milking, the last one will be found to yield from 8 to 10 times as much cream as the first. (Anderson.)

Next in importance to the use of milk as a diet drink and as an ingredient in the manipulations of the kitchen, stands the manufacture of butter. This is rising in importance daily as our system of railroad communication opens to us the trade of the cities and manufacturing towns of the eastern States. But in order to a correct understanding of the theory of making either butter or cheese, a brief explanation of the chemical changes which take place in the separation of these products from their original combination in the milk, will be necessary. We have seen in the above table that two semi-solids, to-wit, casein (or cheese) and butter exist in milk. Casein is insoluble in water, but if an alkali, such as soda or

potash be added to the water, then it will dissolve casein. On this simple law is suspended the whole theory of making butter and cheese. Fresh milk contains soda enough to render the cheesy matter soluble in the 87 per cent. of water which is present. But the sugar of milk, with the aid of a proper temperature soon begins to pass, by a true fermentation, into lactic acid, which acid as soon as formed seizes the soda present, and both are neutralized.

This action continues until all the soda is taken up, when the water becomes no longer able to hold in solution the casein, which separates in the form of curd. This action may be very much hastened by the presence of any animal membrane which has been long exposed to the air. For this purpose the stomach of the young calf, under the name of rennet, has been employed to coagulate milk in the manufacture of cheese from time immemorial.

The action of rennet in producing the change of milk sugar into lactic acid seems to be analogous to that of yeast in inducing a change of grape sugar into alcohol, and finally into acetic acid. But when coagulation takes place without the aid of rennet, simultaneously with the change of milk sugar into lactic acid, another action is going on.

The butter in new milk exists in the form of minute globules, inclosed in a very fine membrane of cheesy matter. These globules, being lighter than water, rise to the surface, and, if the fluid is suffered to remain at rest, this arranging of the particles according to their specific gravity will go on until all the butter globules have found their place at the surface of the milk; unless indeed coagulation should take place before this is accomplished. By the rapid agitation of the cream in churning these globules are broken, and the particles of butter cohering together are separated from the casein, lactic acid, and water which remain in the buttermilk. The combination of casein and milk sugar seems to be necessary to the formation of the envelope of the butter globules, as no amount of churning is sufficient to break them and set free the butter, until the conversion of this milk sugar into lactic acid begins to take place. I am aware that new milk may be churned and butter produced, but however fresh the milk may have been, the buttermilk, after the collection of the butter, will be found to be distinctly acid. The agitation of the cream, with free access to the air, has formed a portion of lactic acid. These changes are always accompanied by an increase of heat, often amounting to 10°, if the formation of butter is rapid. This elevation of temperature no doubt facilitates the bursting of the globules, but if the temperature rises much above 60° the cheesy matter of the envelopes of the globules remain mixed with the butter, which gives it a light color, prevents it working solid, and renders it liable to become soon rancid.

Butter may be separated from milk by the effect of heat alone. If a portion of cream be gradually heated to about 200°, and maintained at that temperature for an hour, the butter, in the form of limped oil, will be found floating on the surface of the half melted cheesy matter. If suffered to cool, it becomes hard and may be removed, but it has neither the odor nor taste of butter procured by churning.

With these theoretical explanations we proceed to a more practical consideration of dairy products. A good milk-house is indispensable in the manufacture of butter, and this should combine free ventilation, with a temperature ranging between 40 and 60°. Perhaps the best mode of accomplishing these objects is to use

a constant stream of spring water as a regulator of temperature, and large wire windows, looking to the north, as ventilators. These should be so constructed as to freely admit fresh air, and at the same time exclude insects, and should be so arranged that they could be closed with glass in winter when necessary. But a running spring cannot always be commanded, and perhaps the best substitute will be made by placing in the milk-house a broad, shallow trough, supplied with water from a well, and renewed as often as the temperature may require. The milk should be permitted to remain in the milk house, undisturbed, for 24 or 36 hours, if but one quality of butter is intended to be made; but if it is the intention to make a superior article for table use, the cream should be removed at the end of 12 hours. A second creaming may be made 24 hours after the first. This will produce a paler and less pleasantly flavored butter, which may be sold as "firkin butter," at a reduced price. The time required for the cream to rise, and consequently the quantity and quality of it, will be sensibly effected by the shape of the vessel containing the milk. In a broad shallow pan the cream will rise in a much shorter time, and in larger quantities than in narrow deep vessels. Indeed, incipient coagulation often takes place in these last before all the cream has arrived at the surface, and coagulation always arrests the collection of cream.

It is now admitted by dairymen generally that the cream should not be churned until it has acquired a distinctly sour taste. In this state it requires less churning, produces more butter, and an article that will keep better and be equally as finely flavored as that produced from sweet cream.

In many districts in Europe butter is made by churning the whole milk. This mode requires more labor from the difficulty of keeping up a uniform agitation of so large a quantity of fluid; but it has the advantage of yielding a larger quantity of butter, and in the vicinity of large cities buttermilk is more saleable than skimmed milk.

Several methods are adopted in the different countries where butter is made from the whole milk. In France, the morning's milk is poured, while warm, into the evenings, and the whole churned at noon. A Scotch work, "Ayton's Dairy Husbandry," directs that three milkings, 6, 18, and thirty hours old respectively, be mixed together and churned immediately; or the mixture may be left to stand until the whole has become distinctly sour and completely coagulated, taking care, however, that the curd be not broken until it is ready to be churned. In Holland, a different practice prevails. The milk is frequently stirred to prevent the cream from rising, and this is kept up until the milk begins to sour; it is then suffered to stand at rest until it gets so thick that a wooden spoon will stand upright in it, when it is churned with cold water. Spreugle says that there is not really an increase of butter obtained by this method, but that the butter carries with it from the milk a larger quantity of curd than from the cream alone.

In Bohemia, butter is made from what in Scotland is called "*clouted cream.*" To produce this the milk, fresh from the cow, is placed in a vessel over a slow fire and brought up nearly to the boiling point, say 200°. It is then set away in a cool place, and at the end of 24 hours nearly double the quantity of cream will be found on it that will rise on the same measure of milk unscalded. The cream is much thicker and has a sweeter taste. Milk treated in this manner will yield 25 per cent. more butter than if treated in the common way, and the quality of the

butter, when fresh, is excellent, owing to its containing a larger portion of sugar of milk mixed with casein. But the very circumstances to which it owes its excellence will prevent it from being kept in good condition for any considerable time.

The clouting of cream is extensively practiced by dairies in the vicinity of large cities, where the sale of cream is a profitable branch of the dairy business. The more rapidly cream rises, and the thicker it is, the more rapidly may it be churned, but the more quickly butter is churned the paler, softer, and the less rich the butter. The cream yielded by some cows is much more easily churned than that from others. This is true, not only of different breeds, but of individual cows of the same breed. It is, therefore, impossible to say how many minutes cream should be churned. The best rule, perhaps, that can be adopted is to continue the churning until the butter is well collected in a mass, and a ladle, or other wooden instrument, dipped into the buttermilk will, when drained off, show no particles of butter adhering. Churning beyond this point will indeed increase the weight of butter, but only at the expense of the quality. As a general rule, cream may be churned with a good instrument in an hour, or, if the whole milk is churned, in one and a half hours.

Numerous improvements have been patented within the last few years, relating to the form and mode of action of the churn. Those which I have had an opportunity to examine propose either a more perfect agitation of the cream or a freer admission of air. In the philosophy of making *good* butter neither of these is the most important point.

About ten years ago, M. Valcourt, a Frenchman, invented a barrel churn, consisting of an inner cylinder of sheet zinc inclosed in an outer vessel, with the space between the two filled with water to regulate the temperature. An attached thermometer indicated the temperature of the cream, and the chamber was filled with warm or cold water, as required by that indication This churn has been extensively used in the dairies of England, and a modification, perhaps I should an *improvement* of it, has been introduced to the butter makers of this country by the name of the "Thermometer Churn." It has the reputation of performing its work expéditiously and well.

The temperature of the cream is of the first importance in making butter. When the churning commences the cream should be as near 55° as possible. This temperature can be easily attained in the winter; but as the temperature of the best well or spring water in this latitude seldom falls below 54°, it is often difficult to get the proper temperature in warm weather; and if this point is not gained the manufacturer must be content with an inferior product. When the whole milk is churned, however, a higher temperature, say 65°, may be tolerated, and yet a fair article of butter produced. As the churning progresses the temperature rises, but it should always be kept below 65° in cream and 75° in milk. Butter obtained at a higher temperature than this is always pale, soft, and spongy, soon becoming rancid and unfit for the table.

After churning, it remains that the butter be separated from the buttermilk and prepared for the table, or packed for keeping. To perform intelligently this part of the work requires at least a limited knowledge of the composition of butter and the chemical changes that take place when it becomes rancid. Butter taken from

the churn and exposed to a temperature of 200°, and afterwards washed through several waters at about that temperature, will, on cooling, congeal into a more or less pure, white, solid fat. If this product be submitted to the action of a powerful press, at a temperature of 60°, a yellowish transparent oil will be pressed out, and a solid white mass resembling stearine will remain in the press. This substance is known to chemists by the name of Margarin, and the oil is called Olein. The proportion of these two substances vary with the season of the year, food of the cow, &c. Bromeis gives us the mean of a number of specimens examined, as follows:

Margarin	68
Olein	32—100

But the margarin is always found to contain a trace of casein or cheesy matter that has escaped the washing, and the olein frequently contains butyric acid. But the presence of even a small quantity of casein in butter will cause the oil of butter to absorb oxygen from the air, and by this it is rapidly transformed into butyric acid first, and afterward into capronic acid, to the presence of which substance in butter is to be attributed its peculiar taste and odor when rancid. If then we can completely separate the cheesy matter from butter it may be kept sweet for a great length of time, and especially if it be excluded from the air. With an eye to this latter condition some dairies reject the use of water altogether in dressing butter, averring that the water separates the particles of butter, giving it a granulated character. They therefore depend on thorough working of the butter to clear it of buttermilk. If the buttermilk can be entirely worked out, the butter will certainly be very compact and solid; probably not because water was not used but because the mass was of necessity more thoroughly worked. When water is used to wash butter it should be *pure water*. If there is any bad odor or taste about the water it is sure to impart it to the butter. As the presence of casein in butter is now known to be the great obstacle to be overcome in preserving it sweet, and as we know that casein may be dissolved in any alkaline fluid, (as it is in fresh milk,) I would suggest the propriety of washing butter in water with soda dissolved in it, say a teaspoonfull to the quart. This would dissolve the cheesy matter, and it would be carried off by the water, and if a portion of soda should be retained it will not give any bad taste to the butter. Butter washed in this manner and worked solid and firm—packed in stone-ware jars and sealed air-tight may be kept fresh a year or more. Even after butter has become rancid the capronic acid may, to a great extent, be neutralized by washing it well in cold water, with soda dissolved in it, in the above suggested quantity. But however we dress butter, it should be thoroughly worked, and afterwards fine salt in the proportion of $\frac{1}{24}$ should be added and carefully mixed before packing. Some dairies adopt the plan of salting, and letting the butter stand in a cool place twenty-four hours, and then re-working it thoroughly. Much water may be separated by this second working, which will certainly be a great advantage in the way of saving the butter. But a portion of salt is lost with the water, and therefore a larger quantity must be used at first, say $\frac{1}{20}$, to allow for this waste.

In the manufacture of cheese the first consideration is to completely separate the casein by its perfect coagulation. We have said that the reason why this is

fluid in new milk is because an alkali is present, but as soon as this is neutralized by an acid the curd thickens and, by aid of a proper degree of heat, separates from the whey, carrying with it most of the butter and leaving behind the sugar of milk. When coagulation takes place spontaneously it is from the formation of lactic acid, but any other acid will produce the same effect more or less perfectly. In Holland Muriatic Acid (*Chloro-Hydric*) is extensively used for this purpose. The ancient Greeks used Vinegar, (*Discorides*), Lemon Juice, Tartaric Acid, a decoction of sorrel, and other acid vegetables are used in different countries. In Switzerland a quart of sour milk is added to ten gallons of new milk, and produces a very fine curd in two or three hours if a proper temperature be observed. In this country and in England rennet is almost universally used in cheese making. It is the stomach of the sucking calf, and it seems to operate only by hastening the formation of lactic acid by which, and not by the rennet directly, the curd is separated. Though the calf's stomach is almost invariably used for this purpose, yet any mucous membrane, such as a piece of intestine or bladder, not only of the calf, but of the sheep or hog, will have the same effect but will act with different degrees of rapidity. In some of the Swiss Cantons and in Cheshire rennet is prepared by carefully washing the stomach both inside and outside, while in Ayrshire and the Welch cheese districts the contents are suffered to remain in the stomach undisturbed, under the erroneous impression that it is the gastric juice that produces the effect. A like difference prevails in the mode of preserving rennet. In the districts last named the outer coat of the stomach is rubbed with salt—a handfull put into it, and the whole hung up to dry; while in Cheshire the rennet is washed thoroughly and salted down under a strong brine, where it remains a year, and is then dried for use. In the "Cheesdom" of Ohio the rennets are generally washed, salted, and dried immediately. Which ever method is adopted, a rennet is not fit for use before it is a year old. After it has been once used, if it is resalted and dried, it will regain in a considerable degree its original coagulating powers. In using the rennet different customs prevail in different countries. In Cheshire a bit of rennet the size of a half crown piece is put into half a pint of water and half a teaspoonfull of salt added. This is said to be sufficient to coagulate twenty gallons of milk in thirty minutes. Mr. Ayton, in his "Dairy Husbandry," directs that "a rennet be cut into small pieces, and put it, with a handfull of salt and a quart of warm water, into a jar; allow it to stand two or three days, strain the liquor, pour upon it another pint for a couple of days, mix the two decoctions, strain the whole, and bottle for future use." Of this liquid he affirms that "a tablespoonfull will coagulate thirty gallons of milk." In Lombardy the rennet is minced fine, mixed with salt, pepper, and a little whey to moisten it, into a paste which is preserved for use (Cattaneo.)

It is perhaps the better method, however, to take a common sized rennet, pour upon it two quarts of warm water, 150 degrees, let it infuse three or four days, rubbing the skin each day,—strain the decoction—saturate it with salt and bottle it for use. The rennet after soaking should be put into a strong brine for a week, and afterwards dried for a second use. Of the decoction the quantity necessary to be used varies with the quality of the rennet—from a table spoonful to a half a pint. The milk should be warmed to 95 degrees before the rennet liquor is added. On pouring it into the milk, the whole should be stirred, and then suffered to rest

until coagulation takes place. If two milkings are used, the evening's milk should be strained into a narrow deep vessel and placed in a cool situation. But little cream will rise and this should be removed, as it can never be incorporated with the curd after it has once separated. To this the morning's milk should be added, and the two well mixed before coagulation, that the curd may be uniform. The amount of rennet liquor should be sufficient to form a firm curd in forty minutes. As soon as this is effected, the curd should be cut. This was formerly done with a large wooden knife, but a modern curd cutter, which is made of wire with meshes half an inch square is a much better instrument. After cutting, the curd is left to settle for about twenty minutes, when the whole contents of the vessel is heated to about 110 degrees. The whey is then drawn off from below, and the curd carefully lifted on a wire gauze bottom, or sceive, where it is suffered to drain fifteen or twenty minutes. A pound of fine salt to every 25 pounds of curd should be well mixed with it—and the material is ready for the press. Of cheese presses a great variety of patterns are in use. Those employing lever power, or a combination of the lever and pully are to be preferred, as requiring less attention than the screw press which has to be frequently adjusted as the resistance diminishes. "Parker's self-adjusting press" combines as many advantages as any press that I have examined. The cheese should be turned every twelve hours and should remain in press at least thirty-six hours. A practice prevails in some of the European dairies, and has been adopted in some parts of this country, of dipping the cheese, fresh from the press in boiling water, and immediately applying a bandage while the surface is soft. This produces a horny rind that admirably preserves the cheese from the encroachment of insects. Others apply the bandage at the last turning. This has the advantage of leaving no rind when the bandage is removed. The cheese should be kept on shelves in a dry, well ventilated room, screened by shade trees from the heat of the summer's sun. Here they will require daily turning, and if bandages do not cover the faces of the cheese, they should be frequently rubbed with butter or whey oil.

That the dairy may be made the source of immense income to any country as well adapted to grazing as Indiana, is a proposition too well settled to require either proof or illustration. Ashtabula county, Ohio, produced in 1852, *six millions* of pounds of cheese, worth in the market more than half a million of dollars. A single township, (Claridon), in Geuagua county, shipped the same year 203 tuns equal to 406,000 pounds, and worth at 10 cents per pound, $406,000. This portion of Ohio is no better adapted to dairy farming than the whole of central and northern Indiana. The introduction of dairy husbandry into the State would at least vary the products and relieve the pressure of heavy competition in the grain and pork production which every few years proves so disastrous to the farmers of this country.

THE SOIL OF INDIANA:

Its fertility, the causes operating to produce, and the means of maintaining that fertility.

BY DR. R. T. BROWN, OF MONTGOMERY COUNTY.

Geological theory teaches us to estimate the composition and character of soils by the nature of the rock, or other solid substratum underlying it. Hence we infer, with a great degree of accuracy, that a soil overlying slate or felspar will be a clay soil; or, if the rock beneath be a limestone, we expect to find the soil abounding in lime, but deficient in sand or the silicious compounds; while on the other hand, if the soil rest upon sandstone or granite, we expect to find it rich in silicious matter—a warm, sandy soil, but wanting lime and other inorganic substances generally derived from the decomposition of limestone. But for a single circumstance this rule of judging soils would be both infalible and universal. That circumstance vitiating the rule is the fact that in certain localities there is interposed between the soil and the rock beneath an indefinite depth of drifted material, which, by its decomposition, furnishes the soil above, while it bears no relation to the rock on which it rests.

The diluvial, or drift formation, is one of great interest to the geologist, and hence we are not deficient in theories, each proposing to solve satisfactorily the mysteries of the drift epoch. But passing these by for the present, we invite your attention to a few facts connected with the drift formation.

1. This formation, with its attendant phenomena, is to be referred to the last of that series of great convulsions to which our globe has been subjected, and that this catastrophe took place at a period, geologically, not very remote.

2. The agent employed to produce the stupendous phenomena of the drift was water, either in its solid or fluid form, or both conjointly.

3. The influence of the great agencies of the drift period was universal, leaving its indelible marks, as Cuvier has well observed, on the summits of the loftiest mountains as well as in the deepest valleys.

4. It was not a mere inundation of the earth by a sheet of standing water, but an overwhelming of it by mighty currents, which prostrated every obstacle before them; tearing up the granite foundations of the earth and transporting the materials to remote regions, and scattering it, ground to fragments and all water-worn, over other lands.

5. In the regions north of the equator, these currents, though differing much in force, were uniformly from a northerly direction.

These five facts embody about all that is known about the origin of the drift formation. All beyond is the land of conjecture—the territory of the unknown, perhaps of the unknowable.

The drift formation as it exists in Indiana, and indeed throughout the whole northern portion of the Mississippi valley, differs materially from the phenomena

exhibited by it in Europe, or even in the eastern portion of this continent. The drift agency in those countries has confined itself mainly to the transportation of boulders, of various sizes, from the adjacent mountains and scattering them over the plains and hills in the proximate vicinity.

As a remarkable instance of the transportation of boulders, Sir Charles Lyell says that, in Scotland, blocks of mica scist have been torn from the summit of the Grampian hills and carried, southwardly, over the broad and deep valley of Strathmore, and landed on the sandstone and shale of the Sidlaw hills, fifteen miles distant.

This is, perhaps, about the extent of the drift agencies in the Atlantic States, in Great Britain, and throughout southern Europe. But recent observations have demonstrated that in Russia, Denmark, Sweden, and other parts of northern Europe, the drift formations are as fully developed as in the upper section of the Mississippi valley.

The drift in Indiana is deepest in the northern portion of the State and gradually thins out as we pass to the South. Indeed the true boulder drift hardly reaches the Ohio river at any point. A line drawn from the southeastern corner of the State to the Wabash river, at a point half way between Terre Haute and Vincennes, will mark the most southern limits of the boulder drift. Beyond this we frequently find local accumulations of drifted matter deposited on southern slopes, but the material is always from the rocks in the vicinity. In the central and northern portions of the State the Drift forms an entire and uniform covering, ranging from 10 to 200 feet in thickness, and is composed of a heterogenous mass of clay, sand, (principally silicious), water-worn gravel, and blocks of granite, sienite, gneiss, porphery, and all the primitive and older sedimentary rocks, of various sizes, from a few pounds to fifty tuns in weight. And these detached blocks are distributed over and through the drift and are found lying on formations as recent as the new red sandstone; showing conclusively that they are out of place, and that they, together with the whole formation with which they are associated, have been transported to their present location. But no rocks of this character are found in any place nearer to this location than the high lands between Lake Superior and Hudson's Bay.

That the boulders of our drift belonged originally to this Lake Superior region we have the evidence, first, of the similarity of lithological character, together with the fact that pieces of native copper, sometimes detached and sometimes adhering to its original matrix of "vein stone," identical with that of the copper region of the north, are found in the drift; and secondly, the indications left on the more solid formations which have been denuded by the drift currents, and which now show all the faces of hill and bluffs that look to the north rounded, the angles worn off, and the horizontal faces grooved and scratched by the passage of those ponderous boulders that once ground along their surfaces. These lines are uniformly found running in a north and south direction. The mountain limestone in the vicinity of Greencastle, in Putnam county, exhibit these phenomena with remarkable distinctness.

While there is no absolute uniformity in the deposition of the drift, yet there seems to be an approximation to order in the succession of the different members of this formation. Resting on the strata which remain in place, we generally

have, first, a dark lead-colored clay, very hard and compact, having a specific gravity above that of the carboniferous sandstone, and approaching to the weight of the most compact limestone. It contains but few boulders, and those very uniformly of the quartz character. On washing it, however, we find a great number of small dark colored pebbles, which generally seem to be water-worn fragments of a highly indurated species of trap rock. It is in this "dark marlite," as it has been sometimes called, that we frequently find fragments of wood in a remarkably perfect state of preservation.

Where we have been able to identify the species, we have found this fossil wood, with a single exception, to belong to the cone bearing family of evergreens. The exception alluded to is a well preserved specimen of black walnut, from the depth of 35 feet from the surface. These specimens of fossil wood prove conclusively that, prior to the deposition of the immense mass of boulder drift that covers to an unknown depth much of this country, the earth was clothed with forests of existing species of timber; and that so recent has been this catastrophe that the wood has not yet undergone the petrifactive process.

Sir Charles Lyell found in the drift, in the vicinity of Quebec, marine shells belonging to species now existing in the northern seas, and he speaks of similar occurrences being not uncommon in Europe. I have, however, spent much time in examining the drift of Indiana, and have not been able to find a single shell that did not belong to some older fossiliferous rock which had formed a part of the drift. The utter absence here, and scarcity elsewhere, of either marine or fresh water remains is a remarkable fact, and, to my mind, conclusively proves the falsehood of the hypothesis which supposes that the drift was quietly laid down from floating icebergs at the bottom of an ocean, which was afterwards upheaved and became dry land.

If, on the other hand, we suppose the drift material to have been transported by mighty currents of water rushing down from the north, bearing along with them the vast ice fields of the polar seas, sweeping over the continent with a power which can alone be expressed by the word omnipotence, leveling down mountains and bearing their broken and comminuted fragments, to be strewn in boulders over our plains or deposited in the form of the clay, sand, or gravel of our drift formations, we can readily account for the absence of all animal remains. Animal life could not have existed even for a moment in such tumultuous waters. That a few shell fish might have been carried from their quiet ocean homes and deposited a short distance inland would have been altogether probable, but before they could have reached this distance they must have been ground to powder among the mass of more solid drifting material.

But waiving these theoretic considerations, we return to facts. Above this compact clay we generally find a deposit of gravel laid down loosely and promiscuously. This gravel consists of the broken fragments of almost all the known rocks of the older formations, all of them water worn, and rounded by friction against each other in their passage. It is in this gravel that the great reservoirs of water are located which furnish supplies for the copious and numerous springs for which the drift formation is so celebrated.

Above the gravel we frequently find a deposit, of from 10 to 20 feet, of a lighter color, not so compact, and containing fewer gravel than the lower drift clay. A

very fine sand often forms small reservoirs of water in this upper clay. It is these that supply water for our shallow wells in the central and northern parts of the State. The supply of water, however, is never so reliable nor the quality so good as when drawn from the lower reservoirs This upper blue clay gradually fades into a yellow clay above on which rests the soil.

It must be evident, therefore, that our soil is not derived from, and consequently bears no relation to, the underlying rock in that portion of the State covered by the boulder drift. It is an elementary truth in agricultural chemistry that the greater the variety of material entering into the composition of a soil the better the quality of that soil, other things being equal. Hence a promiscuous drift composed of almost every conceivable variety of rocks and mineral substances is the best possible source from which a soil can be derived; furnishing at once all the elements necessary for the evident range of agricultural adaptations.

The constant decomposition of the quartz portion of this drift furnishes abundantly soluble silex, to supply the enameling or outer glazing so essential to the perfecting the stock of all the cereal grains. From the felspar, liberally diffused through this mass, is derived an abundant supply of potash, which enters into the composition of almost all vegetables, while the limestone pebbles, by decomposition, furnish both lime and carbonic acid; and iron, soda, and other substances consumed in less quantities in the vegetable economy, are furnished abundantly by the chaos of elements forming the drift. Now, if our soil had been derived from an underlying granite, we would have had abundance of silex and potash, but would have lacked lime, soda, &c. If a limestone substratum had furnished our soil, by its decomposition, a deficiency of potash and silex would have been inevitable; while soil supplied from decomposed slate would be an almost pure clay, too stiff and tenacious for almost any agricultural purpose.

But while these general principles are true, there are local variations in the character of the drift, and corresponding variations in the resulting soil. The drift soil of Indiana may be divided into about four general classes. This division, of course, does not include our river bottoms, which are of alluvial and not drift origin.

1. We have, in the northern part of the State, a soil which contains from 80 to 90 per cent. of silicious sand, frequently colored red by the presence of oxyde or carbonate of iron. This is the soil of the sand moraines and oak barrens of Jasper, White, Porter, Laporte, and several other of our northern counties. In some it forms a very inconsiderable portion, while in other sections it is the prevailing type of soil. When fresh it disappoints all theoretic calculations by its productiveness. Unskillful cropping, however, will, in a few years, reduce it to utter barrenness. Great care should therefore be taken to return to the soil, each year, as much as is taken from it; for at best it contains not to exceed 2½ per cent. of organic matter (humus) for vegetable food. This amount, however, is always in a soluble form and ready for use. This soil has a great absorbent power and endures drouth better than those of a more compact character. The large amount of silicious matter, and a competent supply of lime which it contains, gives it an excellent adaptation to wheat, rye, barley, and oats.*

*A remarkable feature in the soil is the fact that the subsoil, if we may call it by that name, exhibits very nearly the same composition for the depth of 8 or 10 feet and will produce a fair crop of vegetation.

2. The second class of soils is well represented by the undulating lands surrounding this city. It contains from 50 to 70 per cent. of sand and from 10 to 20 per cent. of clay, with the other necessary inorganic elements to form a very perfect soil. In its virgin state we often find as high as 10 per cent of humus, or vegetable matter, in this variety of soil. It is generally covered with a heavy growth of timber, prominent among which will be found the black walnut, sugar tree, poplar, and ash, with occasionally a patriarchal white oak. It is but just to say, however, that the dry prairies of this State have a soil nearly identical with this. Both in the prairies and in the timber it is remarkable for its uniformly rolling or undulating surface, giving perfect drainage, while the descent is seldom sufficient to occasion washing. The subsoil is a loamy clay, of a deep yellow color, often approaching to an orange. It contains from 30 to 40 per cent. of sand, intermixed with occasional pebbles, many of which seem to be mere lime concretions, which readily decompose on exposure to the air. I have found in this variety of subsoil, taken from the depth of three feet below the surface, as high as 3.20 per cent. of organic matter—enough to furnish sustenance for a fair crop.

3. The third class of soils is found on the summits between our larger water courses. It is characterized by a heavy growth of elm, beech, shellbark hickory, and white oak. The soil is remarkable for its light color, great tenacity, and its imperviousness to water. The roots of the beech are found on the very surface, and even those of the oak and hickory penetrate but to a very inconsiderable depth. In selecting land in this State the early settlers uniformly rejected this class as wholly unfit for agricultural purposes. It was finally entered for the timber growing on it and for grazing purposes. The predominent element in this soil is clay, though an analysis will show from 25 to 30 per cent. of sand, and from 4 to 6 per cent. of organic matter. But this humus exists almost altogether in the form of humic acid—a compound insoluble in water and consequently incapable of being appropriated to the use of growing vegetables. Hence the appellation used by the unlearned is after all not so very inappropriate. They call it "cold, sour land," which is literally the truth. But this land improves much by culture. The heavy forest which originally covered it is most of it burned on the spot where it grew, thus furnishing, to begin with, an excellent top dressing of wood ashes, and this so far as it goes, supplies (after effectual drainage) the first indication towards improving this quality of soil. For if an alkali, either potash, soda, or lime be applied, the result will be that the insoluble humic acid will combine with the alkaline substance to form humates of potash, soda, or lime, all of which are soluble in water, and consequently are brought into a condition that vegetables can appropriate them to their use. This class of soils are much improved by clovering, especially if 10 or 15 bushels of ashes or lime be applied to each acre as a top dressing. The striking effect of this treatment is simply this: wheat, corn, and all the cereal grains require a certain amount of silex, or, in plainer language, flint, to supply the enamel or glazing on the outside of the stalk. But flint in its natural state will not dissolve in water, but it will combine with potash, lime, or soda, and form silicates of those bases, which are soluble. Now, as this soil is naturally deficient in sand, a few crops of corn or wheat will exhaust all of the silicious matter that is soluble, and nature cannot make a substitute, and will not attempt to make a

larger stalk of corn than she can glaze from the soil. But the stem of clover is not glazed, and of course consumes in its growth no silicious matter. This element of the soil, formed by the natural processes, and hastened by the top dressing of alkalies, will accumulate as long as it lies in clover. But of all of this class of soils there is scarcely an acre that does not require ditching; and though the water in ordinary seasons may not stand on it, yet a judicious system of under draining will, in every instance, pay.

4. The fourth class embraces the wet prairies and its equivalent the "black swamps," among the timber. This soil always exhibits a deficiency of both sand and clay, and, strange as it may appear to some, too large a proportion of vegetable matter. It is indeed what English writers call a "peaty soil." In many of the wet prairies of the north perfectly formed peat exists, which is said by those who have seen both to resemble in every respect the best Irish turf. But even where turf has not been formed, in all the wet prairies, and in the timbered land characterized by the growth of swamp ash, burr oak, soft maple, &c., there is a redundancy of organic matter, frequently amounting to 25 per cent. in the soil. This exists in the form of ulmic and humic acids, neither of which can be dissolved in water to any considerable extent. This, in summer drouth or winter freezing, when not covered with snow, becomes so light that it is carried away by the winds, and thus exposing the roots of the crop to the great damage especially of the winter wheat. But this light vegetable soil lies on a loamy subsoil containing from 40 to 50 per cent. of sand. Below this lies a very tenacious blue clay, wholly impervious to water. After thorough drainage and a perfect surface exposure to the evaporating influences, the next consideration will be to add to the light surface soil a sufficient mixture of sand and clay. In most cases this can be effected by double plowing. By this means we can throw from four to six inches of subsoil on the surface, which, by its greater weight, soon becomes mixed with the soil turned by the first furrow. By double plowing I do not mean subsoil plowing, I mean simply running a second mould-board plow in the track and immediately after a first one, so as to intimately mix the subsoil with the surface soil. Let any man who has a piece of reclaimed wet prairie, or black burr oak land, try the experiment next spring, and he will be astonished at the result.

I am fully aware that there are many marshes where the subsoil cannot be reached by a second plow, where the peaty soil is two or three feet deep. With our present implements these can only be remedied by a system of spade ditching, throwing the subsoil to the surface, as is practiced in many places in Europe. But the price of land will not yet justify the resorting to this expedient.

In thus classifying the soils of Indiana, I have not included that margin of the State lying south of the line of drift deposit. In this region the soil is mainly derived from the underlying rock, and consequently partakes of the chemical character of that rock. The southern portion of the coal field is a light, sandy soil, generally lying on a tenacious clay. The mountain limestone furnishes some specimens of excellent soil in Monroe, Lawrence, and Washington. From its hilly character it is much disposed to wash. This, however, may be prevented, at a small expense, by a judiciously arranged system of subsoil ditches.

But what the agricultural, manufacturing, and commercial interests of this State most requires, at this time, is a thorough knowledge of the varied natural resources

and advantages of the State. To develop these will require such an examination as will give to the world a map of each county, on a scale of not less than half an inch to the mile. These maps, when bound in convenient atlas form, with the accompanying report, will exhibit at once the geology, topography, soil, timber, water, &c., of each section of land in the State.

The distribution of such report and map among the capitalists of the east and elsewhere would tend greatly to increase the taxable wealth of the State by inviting capital to a profitable investment here, while the sale of the work would shortly reimburse the funds expended in the work.

It will probably be expected of me in this relation that I speak of the analysis of soils and its importance to the agricultural interest of every farming community.

It will perhaps astonish some here when I say that it is my deliberate conviction that what is now styled "quantitive analysis of soils" is the most magnificent humbug that has been imposed on this gullible age. A proximate analysis may be made by every intelligent farmer, without much science or the aid of an expensive laboratory. This would determine, first, the quantity of water the soil is capable of absorbing and holding. This is done by taking given weights of soil from different parts of your farm, and gradually heating them to a temperature of 240°; or, if you have not a thermometer, place the sample on white paper, lay it on the stove, and apply heat slowly until the paper begins to be colored. The loss of weight will indicate the power of the specimen to retain moisture. If you wish to know the absorbent power, you will now place your dried specimens on paper, in an open exposure for a night, when the atmosphere is clear, and weigh again in the morning, and the increased weight will be the absorbent power. Secondly, to ascertain the amount of organic matter, take a given weight of soil, dried as before, and subject it to a red heat on a piece of clean sheet iron, the loss is the amount of organic matter. Wash the remaining soil through several waters, pouring into another vessel the muddy water each time—repeat this until the water is no longer muddied. You have then the sand in one vessel and the clay in the other. Or, if you wish to be more accurate, you can let the clay settle; pour off the water and digest the clay for an hour in dilute sulphuric acid, which will dissolve the clay and leave a small amount of sand, which may be added to the other sand. Now submit the sand to the action of weak muriatic acid, which will dissolve the lime, potash, iron, &c. The residue now weighed will be the silicious sand in the soil. The lime may be precipitated from the solution by the addition of sulphuric acid, which forms insoluble gypsum.

Such an analysis as this may be of great use to the farmer and will cost but little. But a moment's reflection will convince every thinker that an attempt to accurately determine the quantity of the substances which enter into the composition of a crop is simply an absurdity. Suppose an acre of land be cultivated, as it should be, to the depth of eight inches, we have then about two millions of pounds of soil per acre. Now put on this acre 400 pounds of guano, and a very marked result will be found in the several succeeding crops. But this 400 pounds of guano, when intimately mixed with the soil, will constitute but about .0030 of one per cent. of the whole! Where shall we find balances sufficiently delicate to determine this weight and detect the presence of the fertilizer?

I wish here to drop a suggestion on this subject of soil analysis before I leave it. As growing vegetables can only appropriate to their use substances in a fluid form, would it not be the nearest route to the true measure of the capacity of the soil, to ascertain the quantity of soluble matter it contains? This could easily be done by taking 1000 pounds or more of soil from different parts of a field, and leaching it, as we leach ashes to obtain potash, and evaporating to dryness the liquid that has passed through the soil; this weighed would give us the available matter of the soil, and an analysis of this would give us an approximation to its constituents.

But the fertility of any region, and its adaptation to the sustenance of a dense population, depends not wholly on the nature and composition of the soil. Geographical position, climate, &c., have much to do with these subjects. The extreme southwestern corner of the State reaches to about the 38° of north latitude, while the northern line of the State is about 41° 35′. Indiana, therefore, occupies a position nearly central in the north temperate zone—a position which adapts it to wide range of agricultural productions. But the climate of this State is not wholly or even mainly dependent on latitude. Our position in relation to the great chain of lakes on the north and the Gulf of Mexico on the south, exerts a marked influence, not only on the temperature, but on the condition of the atmosphere, in relation to moisture, &c. This hygrometer condition, as it is called in the language of science, is of the first importance as an element of fertility in any country. The interior of both the African and Asiatic continents is formed of arid plains, immense deserts, and barren regions of drifting sand. This depends not so much on the original composition of the soil itself as on the total absence of atmospheric moisture.

This would, in all probability, have been the condition of the interior valley of this continent but for the great chain of lakes on the north and the Gulf of Mexico on the South, operating as reservoirs—supplying by evaporation a sufficient charge of moisture to give us at all times a high dew point.

Tables showing the amount of moisture in the atmosphere, each day for a series of years, together with accurate rain guage observations, are wanting to give this subject that accuracy which alone can serve as a basis for reliable conclusions. I am convinced, however, from my own observations, that the amount of rain which falls in Indiana is above the average of other portions of the continent. The Wabash river drains an area of about 25,000 square miles, but it discharges more water than any other stream in the Mississippi valley draining no more surface, with perhaps the exception of the Illinois, which is very similarly situated. This proves that the quantity of rain is greater or the evaporation less than in other regions. Perhaps both is true. This our geographical position readily accounts for. Had chains of high mountains intervened between us and the northern lakes or southern gulf, the currents of air reaching us from either of those directions would have descended the mountain's side, robbed of all their moisture by the condensing effect of the temperature at the mountain's summit; but as they regained the temperature of the earth's surface their capacity for moisture would be increased, and evaporation would be proportionally rapid. On this principle is formed the great American desert, which stretches along the base of the Rocky Mountains, and between that chain and the Sierra Nevada.

The operation of these laws, under reversed circumstances, becomes one of the great fertilizers of this region. The influence is the same on temperature and consequently on atmospheric capacity for moisture, whether produced by high altitude or high latitude. Currents of air from the polar regions, traversing the temperate zone in their course towards the equator, must necessarily have their temperature elevated and their capacity for moisture increased in the same ratio, which must result in a corresponding increased evaporation from all available sources of moisture. To supply this demand a wise and benificent Creator has spread out on our north thousands of square miles of lake surface. Not only do the lakes serve the purpose, but they act as reflectors, throwing back the rays of the summer's sun to elevate still more the temperature of the lower stratum of atmosphere, that it may be capable of carrying inland a still heavier load of moisture.

But for these salutary influences this valley must have shared the fate of the interior of all great continents, and instead of being the garden of fertility that it now is, would have been a sterile desert. It is now among the admitted facts of science that evaporation and condensation are the controlling agents of the electric condition of the atmosphere, and the amount of moisture present is the measure of the power of the air to conduct electricity from one body to another. To what extent these electric phenomena modify and control the growth of vegetation, our present knowledge of that occult science forbids our being very positive. But that there is an influence exerted by the electric condition of the atmosphere to some extent, every careful observer of nature must have noticed.

The composition of the soil in the intramountain valleys of Oregon and California does not account for their exuberent fertility; but the sea breezes which blow almost constantly during the summer months traverse ten thousand miles of ocean surface, and, consequently, are saturated with moisture to their fullest capacity. As they roll up the slopes of the Sierra Nevada condensation takes place in the form of copious dews, which, to a great extent, supply the deficiency of summer rains. This condensation, however, sets free both the heat and electricity which before held it in the form of vapor. This insures an uniformly high electric condition of the atmosphere, which no doubt has much to do with the almost incredible productiveness of those western valleys. Our seasons vary much in this respect; but I have observed for a number of years that the summers which exhibited the highest dew point were the best crop seasons, other things being equal. Last summer was remarkable for its extremely low dew point. Indeed for weeks during the months of July and August, scarcely any dew was deposited. During this time the prevailing winds were from a few points west of southwest, thus missing the gulf and reaching us from the lofty mountains and parched up deserts of Mexico, completely robbed of moisture.

But we pass on to notice, in conclusion, the very important question: How shall we transmit to posterity the rich patrimony which we enjoy in the soil of Indiana, which is building up our cities and filling our coffers with wealth? The productiveness of the soil of England has been more than doubled within the last 150 years by means of what is there denominated "high farming;" but where is the man in Indiana who can look over his farm and say, "I made this land fertile?" Deterioration of soil and consequently an annual diminution of crops is the

American system of agriculture; and no where is its precepts more strictly followed than in Indiana. With us the first evil is, we attempt to cultivate too much land; or, perhaps I should say, too many acres; for in general we cultivate too little land to the acre—too much surface and not sufficient depth. Three inches of ground stirred by the plow will, in a few years, be exhausted, if it is not before that washed away by the rains.

Deep plowing is the safest, if not the only reliable safeguard against the loss of soil by washing on hillside land, and its drowning on flat localities. Ground that is thoroughly subsoiled, where at least ten inches of the surface has been stirred, will absorb between three to four inches of water, which is more than falls at any one rain under ordinary circumstances; and until that amount is exceeded the hill sides will not gully nor the level land show surface water. Besides this consideration, deep plowing is always remunerative. If the season be wet the surplus water will fall into the loose subsoil, and the surface will directly dry; or if long continued drouth visit us, as in last season, the deeper the soil is stirred the more moisture is absorbed from the atmosphere and retained in the subsoil, which is penetrated by the roots of growing vegetation.

Several of my neighbors were induced last spring to try the experiment of subsoiling their corn ground. As a result of this experiment I can state that their fields suffered but little from the long continued drouth, and they finally gathered fully a medium crop, while the fields adjoining, that had received the ordinary cultivation, yielded less than half a crop.

A judicious rotation of crops is another auxilliary in preserving the fertility of the soil, that should never be overlooked by the prudent farmer. With the exception of grass or clover, no field should be required to produce two successive crops of the same kind; nor should more than three grain crops be grown on the same field without a year's rest.

But deep plowing, subsoiling, and rotating crops, all will not save the most fertile soil in Indiana from utter sterrility and barrenness, if we neglect to remunerate our fields for their production. Under an improvident—I will say wicked system of farming—we are robbing the soil of all its elements of fertility and posterity of a patrimony that we should transmit to them unimpaired. The man who gathers 50 bushels of corn on the cob from an acre of ground, takes from it at least 3,500 pounds of nutritive matter; and if he does nothing to replace these atoms, it is only a question of time when our most productive soils shall become utterly bankrupt. And if the habit of cutting up the corn is practiced, and the fodder removed to a feeding lot, the mischief is more than doubled. Nor do our fields fare better when crops of wheat, oats, &c., are removed, straw, grain, chaff and all, and frequently the stubble burned in the spring, and nothing returned to them to replace this exhaustion of the elements of vegetable growth. We should never forget that "*vegetable life creates nothing.*" The materials out of which a crop is formed must be furnished in a state of solubility in the soil, or in the atmosphere surrounding the plant.

Correct farming will, therefore, provide for the return of all that grows on the soil, excepting merely the grain products. If hay, straw, or grain be fed to stock, the litter from the feeding yards should be carefully returned to the fields that produced them. Ignoring this necessity, thousands of acres of once fertile lands in

the Atlantic States are now turned out as utterly worthless; and the grain production per acre in Kentucky, Ohio, and Indiana is steadily diminishing, at about the rate of one per cent. per annum.

A question of very grave importance presents itself at this stage of our investigation—it is this: Can we export the productions of the soil to foreign countries in the form of grain, beef, pork, cotton, tobacco, &c., in the immense quantities that we do, and yet maintain the virgin fertility of our soil? I think the cultivation of cotton and tobacco will require the importation of guano, or some other fertilizer, to prevent deterioration in the soil. But I doubt not that a grain growing or meat producing country can, by returning to the soil all of its productions, excepting merely the grain, maintain fully its primitive fertility, if the inorganic elements, such as lime, potash, soda, &c., are regularly supplied. This would not be possible if vegetables drew from the soil all the material which they appropriate in their growth. That the atmosphere furnishes much of the food of vegetables is a fact now established beyond a rational doubt. Carbon is a predominating element in the composition of all vegetables, the greater portion of which is taken in through the leaves in the form of carbonic acid, a substance that is always present to a greater or less extent in the air. This, together with ammonia, phosphoric acid, and several other elements of vegetable growth, are capable of being dissolved in water; hence every shower that falls washes the air of these impurities and carries them, in solution, to the roots of the growing vegetables. These are, many of them, derived from the decomposition of inorganic bodies, and are, therefore, a clear gain in the agricultural economy, and fully compensate for the loss of the exported grain.

When the entire growth of vegetation is returned to the soil, every farmer knows that there is an actual gain from some source. For example, a field devoted to clover, and neither pastured nor mown, will be enriched by lying in this condition. But if the modern compensation theory, as advocated by Dr. Lee and others, be true, it should merely maintain its position, as it takes from the earth a certain portion of nutriment in summer to be returned in autumn without interest.

It has been plausibly maintained that snow is really a fertilizer; if so its properties in this respect must be owing to the fact that snow is a porous body, and capable of absorbing from the air ammonia, carbonic acid, and other gaseous bodies, which, on the melting of the snow, are carried down and retained in the soil. Thus, by a wise provision, the decomposition of inorganic elements supply the loss of exportation of grain. But let me admonish you to beware of trusting to this source of compensation beyond this point. It is evident that in the application of these laws, lands that are prostituted to the production of tobacco must be compensated from abroad, or inevitably be exhausted in a few years' cropping, as the entire product is removed and not even an offall returned.

These hints, I hope, will be kindly received and the test of experiment fairly applied, then let them abide the result.

TO IMPROVE THE SOIL AND THE MIND.

BY OLIVER ALBERTSON, OF WASHINGTON COUNTY.

When we revert to the fact that all our Presidents have been farmers, we do not wish, thereby, to convey the idea to the farming profession, that all farmers might be Presidents—but simply to show that within the sphere of their calling is sufficient scope for the exercise of the most active and powerful minds.

John Quincy Adams has said "if there was one business, profession or calling, more independent than another, one that could be called more noble, it was Agriculture." Taking encouragement from such authority as this, we propose to consider some of the most available *ways* and *means* of increasing the products of the farmer, and consequently adding to his pleasures and profits.

Laying out of farms, or making allotments of ground into fields, leaving a due proportion for timber, is the first step, and one of primary importance. We should endeavor if possible, to leave our timber on the back part of the farm, thowing the tillable land in a body, and where circumstances admit, the buildings in front, in order to pass a broad lane through the center, giving ingress and egress to all the fields from the lane, which should be entered by well-hung gates.

No precise plan can be given to suit all situations, but an economical arrangement of the fields and buildings, having due regard to the distance to be traveled in performing all the various labors of the farm, is very necessary. To sustain this assertion we need, perhaps, only say to you, that our neighbor who travels 100 yards to his spring three times per day to water his horses, would, in the course of an average life, travel 5000 miles, which could be saved by the building of a good cistern at his barn, at a cost of not more than $15.00, besides other benefits from its convenience.

Most of the farmers of Orange and Washington counties are owners of tracts of land, varying from 100 to 160 acres each, and we propose dividing the former into 8 fields, of 8 acres each, with from 4 to 6 acres for building purposes and fruit-trees —the latter into the same number of fields of 12 acres each, and from 4 to 6 acres for building purposes and fruit-trees, and the remainder in each case, for woodland pasture, which should be cleared of undergrowth, decayed and decaying timber and nicely set in blue grass.

We make this liberal allotment of woodland pasture, being well convinced that we are all erring in tilling too much too poorly, and firmly are we in the belief, that if the labor spent on 25 acres of grain, in a majority of cases, were spent in preparing, collecting manure, and manuring the 12 acres, they would yield more than the 24, leaving the remaining 12 a chance to improve by rest, ready for another year's crops.

The enclosing of our farms, for many years to come, in most places, will still be the common rail fence, but there are situations amongst us where hedging might be profitably and economically employed—their beauty, the little ground their straight lines occupy, and no corners for the harboring of filth, argue much in their favor. An energetic, fair trial is needing in their behalf.

In the selection, planting, and future cultivation of fruit trees a liberal spirit only will meet with liberal remuneration. Much better had we pay one dollar for a tree with a straight trunk and fine tops, and of the best quality, than to have an indifferent one given to us, for the produce of the former will be ready sale at good prices, while the latter will be neither fitten to use nor to sell. Their cultivation after planting (not by crowding the roots in small holes with your feet, but large holes filled in, partly with lime, &c.,) should be thorough, and the ground mostly occupied with hoed crops, or something of the garden kind.

We now offer for consideration the two systems or plans of rotation for the sizes of the proposed farms, or the tastes of the owners, bearing in mind that we are generally engaged in mixed husbandry, and that these systems may be made available under most circumstances, and if followed as stated, will not only rapidly improve reduced soils, but pay the owner while so doing.

There are 8 fields:

1. Potatoes.—The field being a clover ley, the constituent elements of which are good food for the potato crop. The ground should be broken deeply in the winter, and subsoiled—the manure spread broadcast in the spring, and plowed under 3 inches deep—well pulverized with the harrow—marked off 2½ feet wide—medium sized smooth potatoes, cut into pieces with 2 or 3 eyes to each, and placed in drills 8 inches apart—cover with the plow—when just peeping up, harrow them—after, pass through once or twice with the cultivator—dirt with a small plow, and they are tended. Carefully raise them with a plow and much hand labor is saved. Plant early and they are ready to be raised for wheat to follow.

2. Wheat.—Break the potato ground, put on what manure has been collected from spring till fall—harrow, to incorporate well the manure with the soil—soak your seed in brine, thereby ridding yourself of chess and light wheat, dry it by rolling in ashes—sow early—plow and finish by harrowing. Rolling is very necessary, if not already a fine tilth.

3. Corn follows wheat—and no ground is more free from worms and insects than wheat-stubble when the wheat is taken off, and the shatterings gleaned by hogs. Close up the field to prevent trampling; leave the breaking up till just time for planting, in order to let the clover grow, (the seeds of which will be presently shown to be there), then spare no pains in thoroughly pulverising, planting and tending well. Cut the corn up when ready. The more cattle we can feed, the more manure, and the better they are fed, in reason, the better it will pay.

4. Oats should follow corn; break up, sow early, and harrow in, leaving a good bottom for mowing.

5. Clover follows oats; and being cut at the proper time, the field is then closed, and the second crop suffered to ripen each year, thus always having a supply of seed ready to spring up after wheat and oats, in future rotation, also improving the ground by shading it.

6. Hog pasture.—Each farmer wants a few hogs well pastured—this will do it well, while it in a great measure rests the ground—when they are taken off for fall feeding, the clover partially seeds again, and here is our clover ley for the potatoes, our starting point.

7 and 8. Timothy for mowing and cattle pasture.—We would have the most distant fields for these; retain them as long as they yield well, which may be ex-

tended many years, by harrowing or scarifying the roots, seeding and manuring their places, &c., for old pastures and meadows, when properly treated, afford richer food than new ones. When necessary to break up, change with some other field, till re-set in grass. The woodland pasture is then to be alternate in changing stock with the pasture field.

This system gives a favorable chance for sub-soiling once in six years, no straining or making bear the ground; also the potato and wheat crop, in connection; the former benefitting the latter by its being a kind and easy crop for the land and its thorough tillage. For those who have large farms, or do not wish to raise potatoes, we here offer a plan or system of which experience tells very favorably:

1. Corn.—A clover ley, well broken in the winter—manure of the winter and and spring, put on broadcast and plowed in 3 inches deep just before planting—thorough cultivation; corn used same as before.

2. Oats.—Work well done—field closed after being gleaned to prevent tramping.

3. Summer fallow.—Break up deep in the winter, and sub-soil, cultivate, harrow or plow during the summer, to kill weeds and make a fine soil for absorption from the atmosphere, and rains and dews. Sow wheat as before mentioned—plowing in the manure with the wheat.

4. Wheat taken off and the field closed after gleanings, to protect the clover and prevent tramping.

5 Clover.—Cut and leave the after crop for seeding, thus never sowing but once; the coat also improves the land.

6. Hog-pasture and partial rest before starting again in corn.

7 and 8. Same as before—woodland to alternate with the pasture field.

We are aware that some may consider these systems of rotation too liberal for the quantity of cleared ground, but it must be remembered that we are improving worn out and reduced soils—and so few have given sub-soiling and thorough culture a fair trial that they do not know what the results will be.

Some remarks and statements of facts are necessary to encourage deep, thorough tillage and under-draining, where necessary. Most of our land here has a hard pan sub-soil, and shallow plowing may be compared to placing 4 or 5 inches of dirt in a pan and planting seed in it. Any one can readily see how soon it is dried and plants withered, also how quickly flooded, and when the sun evaporates the moisture how hard it is baked—just so on a larger scale, with our shallow plowing, alternately suffering from being too wet and too dry. Then, as most of our soil and subsoil is clay, let us plow deeply, throwing up some fresh earth each time to the action of the frost, which changes its character, so it will become pervious to heat, air and moisture, become decomposed and absorb much of the elements of crops from the atmosphere, as well as retain from snow and rain when passing through it, ammonia and other gasses evolved by vegetable decomposition with which they are impregnated. It has been estimated by experiment, that 100 pounds ammonia falls in rain yearly, on good under-drained soils, besides many other important constituent elements of crops—and here we may query whether we are not missing our share of these by want of deep and thorough plowing, and summer fallowing—many look upon this as one of the great secrets of successful farming. Clods are no better than rocks. Wheat roots have frequently been found six feet long, hence, if we provide a deep soil, we may safely rely upon the fact that they will search

every corner and bring forth things both new and old. Deep soils will suffer much rain to pass through them without washing, and will act like a sponge in a basin of water, to extract moisture in dry weather.

It has been truly said that the manure heap is the farmer's gold mine, but in most cases there is a great difference shown in the care taken of the two articles. Much depends upon the care and industry bestowed in making, saving, and composting as well as applying it. It should not be suffered to bleach in the rain and evaporate in the sun—neither thrown in loose piles and suffered rapidly to ferment, as in both cases it is much wasted.

Careful experiments have shown that where manure has been only three months of the year covered, and tested with the uncovered in the same field, there has been a difference of 4 bushels of wheat more per acre, in favor of the covered. While we cannot implicitly rely upon all these experiments, yet straws indicate the couse of the wind, and our own judgment teaches us, that when we are within scent of a dung hill, we smell that which our crops would very profitably consume, did we but give them the chance. All strong manures should be mingled with the weaker and absorbents, such as peat, muck, loam, grass, turf, leaves and soil from the woods, &c., in order to prevent too rapid fermentation and the escape of ammonia. Manure, as a general rule, should not be applied but a short time before plowing and not deeper than from 3 to 5 inches—if deeper, portions sink—if on the surface it looses by evaporation.

In prosecuting the various duties of the farming profession we will find that "knowledge is power," and that even a slight acquaintance with chemistry and geology is productive of profit to the purse, and pleasure to the mind. System, energy, and management, are indispensable to success. Time must not be wasted in unavailing *regrets*, *ifs* and *ands*.

So much easier is it to complain of the weather than to put in the plow, that many prefer the latter course. Such must feel the noble calling a burthen, and forever remain at the bottom rounds of the ladder of progress and prosperity.

ON THE CULTIVATION OF THE CRANBERRY.

BY JOHN A. BURBANK.

Our subject embraces two primary divisions: First, the cranberry in general, and what is known by the labors of others in its cultivation; and secondly, the cranberry region of Indiana, the facilities of our State for its cultivation, and something of what we have done in the prosecution of this valuable but neglected branch of agriculture.

The first division of our subject is but little else than a literal quotation of what is deemed valuable in the able report of Secretary Flint to the Massachusetts State

Board of Agriculture, interspersed with information derived from other sources—thus gathering together the scattered shreds of information, and rendering them compact and accessible.

That information upon this subject has been heretofore so meager and unsatisfactory—that our own State has every facility for the successful cultivation of the cranberry—and the natural desire to remove some obstructions, however feebly and imperfectly, from the path of those who may succeed us in this enterprise, must be our apology for the magnitude of the task before us, as well as the manner of its execution.

The common American cranberry is a native of North America. It grows and flourishes in mossy swamps and bogs, as well as in sandy soils, from high northern latitudes to North Carolina on the south, and to Minnesota on the west.

The stem of this species is larger than that of the small or European cranberry, and is commonly from a foot to four or five feet in length. It is sometimes much longer, throwing up many rising branches, sometimes to the height of eight or ten inches. The leaves are about one-half an inch long, and nearly one-fourth of an inch broad, the second year, when full grown. On the new spring branches, which bear the flowers and berries, they are crowded towards the top. The flowers are frequently in pairs, very elegant, held towards the end of the new spring branches by erect, reddish stalks, much bent near the ends, giving them, together with the calix and flower bud, before expanding, the appearance of a crane's neck, head, and bill, whence it derives its name, *craneberry* or *cranberry*.

The flowers continue to grow until immature berries are produced on the stem in July, and in some instances even into August. The berries are of a yellowish green before ripening, and when ripe of a bright scarlet or carmine color, and in some varieties nearly black, or light and speckled with deep red, varying in shape from round to oval oblong, about one-half of an inch in diameter, of an agreeable acid taste, and often clinging to the vines during the whole winter. It grows naturally in watery bogs and morasses, and sometimes on high mountains. It grows luxuriantly on marshes exposed to and covered by high tides—on coarse sand, perfectly white, and entirely destitute of organic matter of any kind, though accessible to moisture—on pine peat—on peat covered with sand—on dry, loamy, and gravelly upland—and on the richest garden mould, thoroughly tilled.

ANALYSIS.

A valuable analysis of this fruit has recently been made by Prof. E. N. Horsford, of Cambridge. From this analysis it appears that the per centage of water is 88.78

Per centage of ash, - - - - - - - - - - - - - -	.17
Woody fiber, tissues, organic acids, and other organic matter not decomposed, - - - - - - - - - - - - - - -	11.15
	100.00

From this analysis it will be seen that only .17 hundredths per cent., or less than two-tenths of one per cent. of the cranberry, is found in the ash, as inorganic matter, derived from the soil, all the rest being derived from the atmosphere and from water.

The results of experience are therefore strikingly corroborated by the deductions of science, that the cranberry will grow where nothing else will. It explains too, how it is that this fruit seems to require nothing for its perfect development but air and water.

MODE OF CULTIVATION.

The cranberry may be propagated from the seed, or from cuttings, or by transplanting. The first crop obtained by planting the seed, will ordinarily be a year or two later than that produced by wild plants transplanted. It is therefore more profitable to transplant, except in one or two sections of the State, where the interest in transplanting has been so great that $10 a square rod is not an uncommon price for plants, where the ground is thickly covered.

Where it is desired to propagate by slips or cuttings, the usual practice is to gather a large quantity of vines, and run them through a common hay-cutter, till they are reduced to the length desired—an inch or so—when they may be sown broadcast and harrowed in; though it is considered best, on some accounts, to sow in drills, and cover properly. These slips very soon take root, starting from the base of the leaves, and at the same time shooting up many rising branches.

If sown broadcast and harrowed, they should not be overflowed till the slips have taken root, as otherwise, many remaining uncovered, will be floated off.

In the case of cranberries growing wild, it is a common and well-known practice to flow or cover them with water during the winter and early spring. This is very desirable, if the situation is such as to allow it, though it is not generally considered essential by those who have been most successful. It is often useful, where there are facilities for flowing, to let the water remain a few inches deep till the spring is well advanced, (some think till the first of May, or even later,) to retard the blossoming till there is no danger from frosts. Facilities for flowing are desirable in the *cultivation* of cranberries also; and if the plantation could be so arranged as to flow very quickly, it might be of essential service, occasionally, during the spring or autumn.

As the cranberry, in its natural state, is more frequently found growing in a low, wet swamp, or marsh, that kind of land is generally selected for its cultivation. The mode of setting out the cranberry in such a swamp, if we suppose it to be covered with bushes and grass, and surrounded by a sandy soil, or in the immediate neighborhood of sand, would be as follows: First, cut the bushes, and pare off the surface turf to the depth of several inches, so as to remove as far as possible the roots of grasses and bushes; then level the whole, by filling in sand to the depth of from two to four or five inches, according to circumstances. It is desirable that the surface of the sand should be raised but slightly above the level of the water of the swamp, meadow, or pond filled up, so that, by digging into the sand with the hand or the hoe, the water may be found within two or three inches of the surface.

The plants should be taken up with the spade in square turfs of the thickness of two or three inches, this being the depth to which the root generally descend. When the ground has been leveled and prepared as directed above, it will be found more convenient to draw straight lines, and set the roots about eighteen inches apart one way, and one foot the other, in small clusters of about five or six together, the grasses taken up with them in the turf having first been removed from them.

The practice of some has been to set the turf, thus taken up, into the row without removing the grass; but the vines are so tenacious of life that there is little danger of their dying, even if all their natural earth is removed from their roots, and those who have followed this *method*, have generally less trouble in the subsequent cultivation.

Some prefer to set them in rows at a greater distance apart, having the rows two and a-half or three feet, and the plants one foot in the rows. If the sand is thick and loose, so as to make it impracticable to cultivate the vines and pull up the grasses and weeds, on account of the danger of starting the roots, the closer the plants are set, the better; since they will thus the sooner cover the ground and get the advantage of the grasses. Where it is not intended to hoe the plants in such situations, a foot each way will probably be the most convenient distance between the plants.

The cost in such cases varies from $100 to $400 per acre Under the most favorable circumstances, I have never known an acre to fall below $125, and that too, where it has been prepared in the most economical way, all the labor being performed by the owner himself The cost, including the original preparation by paring, fencing, filling with sand, procuring and setting out the roots, has more frequently been $300 per acre. When the roots are thus transplanted, a foot or a foot and a-half being left between them, they are expected to spread and entirely cover the ground with vines in about three years. If the position be a peat meadow, substantially the same course should be pursued.

There has been some difference of opinion as to the use of peat or sand after the incipient grubbing and pairing has been done; but the weight of opinion seems to be in favor of the sand, not because the cranberry will not grow equally as well in peat, but because the grasses growing so abundantly in peat increase the labor of cultivation. A somewhat simpler mode of procedure is sometimes adopted in the case of ordinary low meadows or swamps. If the meadow is covered with bushes or tussocks, remove the former with the grubber, cut the tussocks off level with the surface, when the vines, being taken from another part of the meadow or elsewhere, are set by first striking the hoe into the soil and raising it slightly, when the roots are inserted and pressed down with the foot.

The mode of Mr. Leland, of Middlesex, Mass., was to cut out squares of turf corresponding to the squares of cranberry vines which he placed in their stead, and keep the vines under water from spring until July to destroy the worms.

Mr. Thomas H. Samson, of Plymouth, Mass., removed the whortle bushes and alders, tussocks and tops of the soil, and early in the spring set about one-fourth with cranberry vines, without any dressing. He continued annually for three years to set the same quantity, a part of which he covered with a dressing of gravel and soil about an inch in thickness, and a part with sand and gravel, and sowed over the lot a bushel of cranberries, first crushing them and mixing with sand. He finds no beneficial effect from the sand—finds his cranberries do best where the peat or mud is deepest. He flowed his cranberries from October to April. His products was at the rate of 250 bushels per acre. Has no faith in raising cranberries on dry soil.

Other experiments, however, show the practicability of raising cranberries on upland. Mr. Roberts' experiment embraced a tract near the foot of a slope de

scending in a westerly direction. The ground was plowed eight inches deep and harrowed; light furrows, three and a half feet apart were run lengthwise, and the sods were cut from the swamp, carted on the upland, and placed three feet apart in the rows (though two would have been better), then carefully hoed and kept free from weeds for two years. No water was supplied except that received from occasional rains.

In the cultivation of cranberries, whether on upland or lowland, it is very important that the ground should be entirely covered by the vines as soon after planting as possible, not only on account of the great saving of labor, by thus preventing the growth of grass and weeds, but also because very little fruit is commonly produced until the vines have thus spread over the surface. At the end of three years the whole ground should be covered; but in the instances of upland culture referred to it was not so, though the plantation had been set at least three or four years. Probably if the roots had been put but twelve or eighteen inches apart the result of the experiment would be more satisfactory in this respect. As it was, however, the yield in 1852 was one bushel to the square rod, or 160 bushels to the acre, when cranberries were selling readily at $4 per bushel.

TIME OF PLANTING.

If the cranberry is to be raised from the seed, it may be sown in the fall or spring. The month of May is usually selected. If the plants are to be propagated by cuttings, the spring also is preferable; but for the usual mode of transplanting the vines the fall is generally preferred, though there is no difficulty in making them live when transplanted at any season of the year. If planted in autumn, they will take root and grow more vigorously in the spring, and will also bear a little the next summer, and the crop increase gradually until the fourth or fifth year, when it attains its highest yield.

THE YIELD.

The yield will vary according to circumstances, but about one hundred and fifty bushels will be a fair average. In a large number of cases a bushel to the square rod has been gathered without much trouble of cultivation.

In one lot visited by me, more than three bushels to the rod, or 480 bushels to the acre, were obtained from very thrifty vines, on a peat bottom, with a thin covering of sand.

Loudon remarks, that Sir Joseph Banks, after having imported the American cranberry into England, raised, in 1831, at the rate of 460 bushels per acre.

The market value of this fruit will also vary in different seasons. In 1852, $4 per bushel was readily obtained. The demand is rapidly increasing, and there can be little doubt that it will continue to increase as the superior quality of the cranberry in some sections of the State becomes better known. And if owing to any circumstances, such as competition abroad, the value should fall to $1 per bushel, it would still be a profitable and desirable product, especially when it is left to occupy its favorite, barren and otherwise unproductive swamps and dead lands.

VARIETIES.

The varieties of the cranberry have not been very destinctly named, as most varieties of the apple have and must be described, and can only be distinguished by difference in shape and color. The large, round and black cranberry of Cape Cod and Cape Ann, sells for nearly a third more than the oblong and softer variety more common in other parts of the State. It might properly be called the black cranberry, so nearly does its beautifully shaded deep red approach to black. It is very hard, nearly as hard as a Baldwin apple, and will bear transportation to any distance. It keeps well through the winter, and even in some cases into the succeeding summer. Indeed, with a little care, good cranberries may be kept a much longer time, either in dry bottles, corked so as to exclude the air, or in bottles filled with pure spring water.

There is an oblong cranberry, more common in the low wet bogs of the country; softer than that which has been described, of a loose and rather watery texture, and shrinking much more in cooking. It is sometimes shaped like an oblong pear. Its color is a beautiful vermillion. It seems more sensitive and liable to injury by the frost than the variety just described.

These varieties are not constant, nor are they very perfectly marked, each occasionally having the characteristics of the other. Thus the black cranberry sometimes, though rarely, assumes an oblong or pear shape, and the oblong is sometimes found harder and better than it generally is, and of a deeper red.

Mr. Samson enumerates two varieties. The Bell is the best for transplanting on loamy soils. In its wild state it is frequently found on the edge of cranberry bogs, working its way towards the upland. In form it is globular and larger than the other varieties; a more constant bearer, and, on light soils, ripens ten days earlier than on the bogs. The other is a pear shaped variety, a shy bearer, and unproductive on the upland. It is more erect in growth than the Bell variety, and the general size of the fruit is smaller.

CRANBERRY WORM.

Its history and habits are not generally known. The egg is supposed to be deposited in the blossom. From this egg proceeds a small caterpillar, which works its way through the fruit, eating the pulp and causing it to grow red prematurely and decay. It bears a striking resemblance to the apple worm and seems to be very much like it in its habits.

Two different remedies have been adopted for this evil. One is to flow the cranberry ground one whole year, thus lossing the crop of one season, and the other to sow salt on the cranberry bed, at the rate of about five or six bushel to the acre. On plantations which cannot be flowed, the latter will probably be found to be the only effectual remedy. It is thought that the application of salt would be beneficial to the cranberries, even if it did not destroy or prevent the ravages of this insect.

MODE OF GATHERING.

In this country the cranberry is generally gathered with a rake, made for that purpose, by which twenty or thirty bushels a day can be gathered. This raking is considered beneficial when no other cultivation is practicable.

In Germany, the small cranberry is gathered by means of wooden combs. In England and Scotland, where they are not found so abundantly, they are generally picked by hand.

So much then for Mr. Flint and the Massachusetts agriculturists, who have devoted their attention to this subject. As we premised in the commencement, the preceding remarks have been almost a literal quotation from "Secretary Flint's report," interlarded with the experiments and conclusion of others laboring in the same sphere, and we can no better conlude this portion of our remarks, than by permitting him to speak as follows:

"If I have dwelt longer upon this subject than its comparative importance would seem to justify, it need only be stated that the cultivation of cranberries is fast becoming an important branch of our agriculture, more than one hundred thousand bushels of this valuable fruit having been gathered during the past season, from land which, for all other purposes, would be comparatively worthless, while the demand for it here and in England, is sufficiently large to absorb all that can be thrown into market,—that the information on this subject was much scattered and inaccessible to many, and that great facilities were at my command for extensive and accurate observation of experiments, many of which had been tried so long that I could state conclusions resting on them, with some degree of confidence.

"Having thus given, as far as possible, a synopsis of the labors of others in this profitable branch of agriculture, we come to what interests us more especially,

THE CRANBERRY REGION OF INDIANA.

It may be stated in general terms that the cranberry is found growing spontaneously wherever *there are* sandy swamps. Perhaps there is no portion of the State where these conditions exist, that it is not found to some extent. It is almost a universal accompaniment of bad roads, deer skins, venison hams and ox teams.

The most extensive and productive natural cranberry meadows are found in the sparsely settled "Swamp lands of the State," extending from the 86th deg. of west longitude, to the western limits of the State, and from the 41st deg. of north latitude to Lake Michigan and the northern boundary of the State, and composing an area of near 4,000 square miles. But especially that part of this region watered by the Kankakee river, and contained in the counties of Starke, Laporte, and Porter, may be considered the principal cranberry region of Indiana. The face of the country is generally level, interspersed with what are commonly called sand-hills, on which a stunted growth of oak timber of its different varieties, flourish; and the prairies, where the cranberries abound, seem like a successive chain of lakes winding around the clumps of timber and hills that represent the shores. The soil is a rich vegetable mold, formed by the decomposition of grasses in these lakes upon a sub-soil of sand. In this soil, containing all the natural and simple elements of the cranberry, (water and a sandy soil,) no cultivation is required but simple protection from fire and cattle, to produce most amply remunerating crops. A simple fence is sufficient to turn the cattle, and the proper care to guard against the fires that occasionally sweep through the prairies, is all that is required; nature is so kind as to do the flowing, very judiciously turning the water on in the month of

November and keeping it there until the 1st of May, thus obeying to the letter, the regulations of the Massachusetts cranberry culturists.

This simple mode of realizing a profit from the natural increase, will pay amply for the expense and time, but it unfortunately happens for those of us who live in the northern bogs, that usually the vines are scattered in little clumps all over the plantation, and hence the necessity of transplanting. Cultivation with us is not so much to improve the size and quality of the fruit, as to increase the quantity and to bring together in one meadow, the vines that are so scattered as to be of little benefit. Our mode is very simple: we plow and harrow the ground, turning the sod over, and then set out the plants in clumps, say from 12 to 24 inches apart, the distance depending upon the amount and kind of subsequent cultivation. We have perhaps five or six acres, put in last fall, at an expense of $10 per acre. We have made no provision for flowing, as nature will do a part of it, and we can very easily turn in the water from an adjacent drain.

Eighteen months have scarcely expired since our advent into the cranberry region of the Kankakee, driven there by what is called in the language of the country, "luck and awkwardness." The necessity of "bread and meat," ignorance and limited means, have prevented a prosecution of this enterprise with magnitude commensurate with our aspirations. Our profits have been exclusively from the natural yield. In that eighteen months, after defraying all expenses of gathering, cleaning, shipping, &c., the net profits were about $600, being an interest of 20 per cent per annum, on the original cranberry investment. The expense of transplanting in the mode above described, is not to exceed $10 per acre. No other cultivation is necessary, as the vine soon manifests its supremacy above the contending grasses, and assumes the entire jurisdiction of its natural and legitimate heritage.

UPLAND CULTURE.

Some cultivators have satisfied themselves that they can raise the fruit on upland, thus proving that water or flooding is not essential to the growth of cranberries. But it must be remembered that in Mr. Roberts' experiments, (the only one reported,) the ground most fruitful was not so situated as to receive the wash of rains from the hill—that the higher portion of the lot was unproductive, and the most fruitful *produced* only one bushel to the square rod, whilst in our northern meadows, nature unaided, produces treble that amount. We have seen from the analysis, that 88 parts out of every 100 is water—that it grows spontaneously in water—is never found in its natural state except where water supplies drink to its thirsty roots. It is true, as has been said, that often the finest specimens are seen working their way towards the high ground, but it is no less true that their roots are in the immediate neighborhood of water, and that for many months have they been steeped in the same element. Not only is water an absolute necessity against the biennial attack of the worm, but experiment has also shown, that to drain the swamps is to destroy the cranberry. The water is its life-blood, and when the empric with lancet of spade and plow would tap its redundancy, he withdraws the current that supports its vital constitution.

SAND.

Carting sand at an enormous expense upon the soil, would be unnecessary in

the cranberry region of our State. Where there is an entire absence of sand, a thin dressing might be desirable, as well as to aid the growth of the vine as to retard the grasses. All judicious cultivators of the cranberry would of course seek the soil where it naturally abounds. Others, who would like to experiment upon their farms or gardens, need only remember that *sand* and *water* are the essentials of the cranberry.

VARIETIES.

In the varieties submitted to your inspection, we find a blending of the three different varieties, the *Bell*, the *Black* and the *Pear*. The large globular *Bell* variety is the most valuable. We are unable to destinguish them from the leaf or stalk, and so far as we have observed, they seem blended together without the differences in softness of texture that in the opinion of some, characterize certain varieties. We must confess, however, that the more practical questions, how to realize the largest, finest, and the greatest number of cranberries, have prevented minute investigation upon this branch of the subject. From the considerations that have been hastily penned, we gather the following reasons why an increased attention upon the part of our citizens should be paid to the cultivation of the cranberry.

1st. It is profitable. The cultivators of Massachusetts have found it profitable after paying two or three hundred dollars per acre in preparing the ground; and accurate calculations including every expense, have shown that it is a *paying* crop at even $1,00 per bushel. If profitable *there*, where land is worth from $50 to $100 dollars per acre, how much more so, in the cheap lands of Indiana, where large bodies of land are owned byrailroad companies and speculators, who would realize at from $6,00 to $15,00 per acre. In many places the plants are already set to some extent, and the entire expense of transplanting and cultivation would not exceed $20,00, while the average price per bushel is $2,00 on the ground, and the average annual net proceeds, from $150 to $200 per acre. Again, fruits and cattle are the natural products of the cranberry region. Grapes surpassing any cultivated variety we have ever seen, strawberries, whortleberries and cranberries grow spontaneously, while apples, and especially peaches and stone-fruits mature with a *luxuriance* of growth and delicacy of flavor, unknown in other portions of the State. This, together with the abundant range for cattle, renders this region desirable, independent of the cranberry; and this brings us to the second position, that the "Swamp Land," or cranberry region of Indiana, offers greater inducements to the intelligent emigrant than any other portion of the Union.

3. *It is healthy.* The swamps are not stagnant like the miasmatic bayous of ordinary streams, but the waters flowing through the sand retain their purity and sweetness.

4. There is *no danger of overstocking the market.* The home consumption of our own State will require all that can be raised for years. This season they were worth from $4 to $6 in Lafayette and Indianapolis, and the demand exceeded the supply.

In addition to these physical advantages, there are the facinations of the chase, and the gratification of the ideal faculties of our own nature.

English Lake and the Kankakee swarm with the finest of fish; deer and prairie

chickens abound, while ducks and geese darken the air with their hovering armies. And then the glorious freedom of the chase—tenting under the frosty canopy of an October moon—tales of border life by the camp fire's waning light—these associations, stamp with unmixed delight the memory of the Kankakee.

And finally, there is poetry there; undulating hills covered with verdure, *flower-be-spangled prairies*, waiving grass, purling streams, and all the sights and sounds of primeval existence.

Picture those prairies teeming with flocks and herds, those hills adorned with houses, gardens and orchards, and you will have a vision of earthly happiness that may well tempt others besides your speaker to try the joys and privations of pioneer life.

Then, whilst others are led off by the siren watchwords of Kansas and Nebraska, from the real and tangible to the ideal and illusive, ever trusting that the distant is the beautiful, let us not forget the one great lesson, *that although toil is the penalty of success, among the varied departments of Agriculture, there is no branch of industry* that will so well repay the intelligent laborer as the cultivation of the cranberry.

ESSAYS AND ADDRESSES

DELIVERED BEFORE

COUNTY AGRICULTURAL SOCIETIES.

ADDRESS

Delivered before the Laporte County Agricultural Society, October 6th, 1855.

BY LEWIS BOLLMAN, OF MONROE COUNTY.

Hybridism, the cause of the deterioration of our wheats. Breeding in and in, breeding by hybridism, or by crossing animals of diverse qualities. Pedigree.

The word *hybridism*, when applied to the intermixture of varieties, as well as species, expresses the general subject of my address, but its particular object is to point out an error in the cultivation of wheat, and a common violation of certain laws in the breeding of stock, and, in pointing out these, to show also the relation between the science and the art of agriculture.

Wheat is your great product. You, and we more southerly, and indeed all farmers everywhere, complain that the best varieties so soon run out * The Patent Office is laboring to remedy this evil by bringing to us wheat from all parts of the world, but still the complaint continues. Ask a farmer what is the cause of this degeneracy, and the invariable answer is that it is owing to the climate and soil, or something else. The old red-bearded chaff, so extensively cultivated a few years ago, he will say, used to be the most enduring variety, yet it too has run out. The climate has changed—things are not as they were in each of our younger days, or something else is the matter. Thus it is that all our guessing at causes terminates

*Since making this address, I find the following in the Ohio Agricultural Report for 1852, page 270:

"The remark was made to us by one of our most discerning citizens, who deals extensively in wheat and flour, that the white varieties turn a darker color, and otherwise deteriorate in quality the third year after being introduced to our soil and climate."

Also, the following in the Wisconsin Report of 1853, page 217:

"The grain (wheat) has depreciated in quality by its constant reproduction on the same soil, by carelessness in the selection of seed and by disease and *mixtures never guarded against.*"

in that something, which is so nearly related to that somebody who talks so much, yet knows nothing—nothing at least that is good of anybody.

Now let me ask, is this guess-work the way to discover the cause of the evil of which we complain? Nature, we know, does not act blindly, but in all her operations acts by laws, which her God impressed upon her works when He created the heavens and the earth. To discover the principles of these laws is the work of science; and hence you perceive how blindly the art of agriculture acts, when its operations are not dictated by science. Indeed the simplest operations of the farm cannot be conducted but by observing these laws. Wood has a quality we call its grain—the farmer splits rails by obedience to this quality or principle, not by disregarding it, directed by science.

That foreign wheats are much influenced by our soil and climate, no one denies, but that our native varieties would be deteriorated by them, no one is going to believe. There, then, is some other cause for this evil. What is it?

When a person plants a melon and a pumpkin near each other, he finds the vines producing a vegetable which does not eat like a melon or cook like a pumpkin. Even your Yankees cannot make a pie out of this product; and it might be cooled in such springs as we have in Monroe, yet the tired and thirsty laborer in the harvest field could not eat it. As Mr. Sparrowgrass, in that far best of all monthlies, Putnam, says: "I had the satisfaction, however, of producing a curious hybrid in my melon patch, by planting squashes in the next bed. I do not know which to admire most—the influence of the melon on the squash, or the influence of the squash on the melon. Planted side by side, you can scarcely tell one from the other, except from appearance; but if you ever do eat a boiled musk melon, or a squash raw, you will have some idea of this singular and beautiful phenomenon."

Here Mr. Sparrowgrass speaks of this product as a hybrid, and Mr. Webster tells us that a hybrid is an animal or plant, produced from the mixture of two species. You know that plants have male and female parts of blossoms—the tassel in corn is the male, the silk the female, and the fine yellow dust which falls from the tassel is that part which makes the ear fruitful. There is a union of the characters of plants by this dust, or pollen as it is technically called.

Science shows us this, and, reasoning scientifically, let us see whether the degeneracy of wheat is not owing to a promiscuous intermixture of varieties.

A hybrid, you will remember, is a cross between two *species*, or *varieties* of the same species. When, therefore, we sow different wheat near to each other, what is the result? A union of the two, producing not simply a third variety, but *numerous* varieties. But the cradle of the farmer—no! that is an antiquated word up here, for you have the reaper—the reaper cuts along the line of the varieties sown, and the farmer declares that in one swath is the Mediterranean and in the other is the blue-stem. And yet neither the one nor the other is in either swath. Soon after the Mediterranean was introduced into our country, several farmers spoke of the improvement the soil was making in this variety. The grain was not so long, but it is thicker and fairer, they said. Last harvest, a year ago, I was helping a neighbor to cradle his wheat, and rubbing some out in his hand, he declared it was nothing but the common bearded, yet the seed he said had been sold to him for the Mediterranean. Last fall, wishing to get some of this variety, I hunted for it among my neighbors, but it was not to be found. One neighbor had

some, which had a pedigree equal to most of what is called pedigrees of thorough bred Durhams, and from him I purchased. It ripened just ten days later than it ought to have done; for I cut it and a variety of white wheat on the same day. In other words, we have no Mediterranean in our county; and I doubt much whether you have.* If it is to be found at all, it will be in the barn of some obstinate countryman of mine, some Dutchman, who has refused to sow any other kind on his farm, and who, at first, was lucky enough to get pure seed.

On this question of hybridization the following remarks are interesting. I take them from the lecture of Mr Lindley, in a work entitled "Lectures on the Progress of Arts and Sciences resulting from the Great Exhibition in London:"

"But this," says the Lecturer, "leads to a question which I think of the highest interest, and one which has been more distinctly brought out in the exhibition that has just been closed than it has ever been before. We all know the *effect of hybridizing*, or crossing the races of animals; and we also know that, within certain limits, this may be done in the vegetable kingdom. We are all aware that our gardeners are skillful in preparing by such means those different varieties of beautiful flowers and admirable fruits which have become common in all the more civilized parts of Europe; but no one has paid much attention to the point as regards cereal crops. Yet it is to be supposed that if you can double the size of a turnip, or if you can double the size of a rose, or produce a hardy race of any kind from one that is tender, or the reverse, in the case of ordinary plants, you should be able to produce the same effect when operating on cereal crops. It so happens, however, that the experiment has not been tried except on the most limited scale, and to what extent it may have been carried has been more brought out in this exhibition than ever it was before.

"In the last treatise on this subject, by Dr. Gaertner, a German writer, who has collected all the information relating to the production of hybrids in the vegetable kingdom, the author declares that, as to experiments on cereal plants, they can hardly be said to have an existence. The exhibition has, nevertheless, shown us that they have been made, and some examples will tell with what result. I have no very good means here of explaining such experiments, but I must advert to them, because they prove distinctly that you may operate upon the constitutional peculiarities of wheat, just as you may upon those peculiarities in any other plant.

"For instance, Mr. Raynbird, of Laverstoke, who obtained, in 1848, a gold medal from the Highland Society for experiments of the kind, sent to the exhibition this box, which contains a bunch of Hopetown wheat, a white variety, and a bunch of Pipris Thickset, which is red. The latter is coarse and short-strawed, and liable to mildew, but very productive. Mr. Raynbird desired to know what would be the result of crossing it with the Hopetown wheat, and the result is now before us in the form of four hybrids, obtained from those varieties. If you will take the trouble to examine them, you will see that beyond all doubt the new races thus obtained are intermediate between the two parents—the ears are shorter than in the Hopetown and longer than in the Thickset wheat; in short there is an intermediate condition plainly perceptible in them throughout. And it appears from

* I subsequently examined some wheats on a farm in Laporte county, and found them completely hybridized, there being almost as many varieties as there were grains.

the statement of Mr. Raynbird, that these hybrid wheats, which are now raised in this country, have succeeded to a satisfactory extent, yielding forty bushels an acre. But in this instance, as in some others which I am about to mention, I do not at all attach importance to that circumstance. The essential part of the question is not the number of bushels produced per acre, but to show that you may affect the quality of cereal crops as you may affect animals, and other plants.

"Mr. Maund, a very intelligent gentleman residing at Broomsgrove, in Warwickshire, has done much more than Mr. Raynbird, for he has obtained a greater variety of results, which he exhibits this evening. Mr. Maund has been occupied for some years past in the endeavor to ascertain whether something like an important result cannot be produced upon wheat by muling, and he exhibited the specimens before us in evidence of what may be done. You will observe that sometimes his hybrids are very good, and sometimes worse than the parents, as we know is always the case. When you hybridize one plant with another you cannot ascertain beforehand, with certainty, what the exact result will be; but you take the chance of it, knowing very well that out of a number of plants thus obtained some will be of an improved quality. If you examine this glass case you will at once see the result obtained by Mr. Maund. In each instance the male parent is on the left hand, the female on the right, and the third specimen shows the result of combining the two kinds—a better illustration could not be desired. Here is a hybrid considerably larger than the parents, and in the next instance one considerably shorter and stouter. In another example you see a very coarse variety between two apparently fine varieties—that is perhaps a case of deterioration. In another instance you have a vigorous wheat on the left and a feeble one on the right, while one much more vigorous than either is the result.

"On the other hand we have some anomalous cases, in which the effect of hybridizing has been to impair quality. Now I think this is a very important case well made out; because the moment you show that by mixing wheat, as you mix other things, you obtain corresponding results. There is no reason to doubt that an ingenious person, occupying himself with such matters, will arrive at the same improvements in regard to varieties of wheat, as have already been obtained in the animal kingdom, and in those parts of the vegetable kingdom which have been so dealth with."

In this extract from the lecture of Mr. Lindley, we find that hybridizing has been highly successful in fruits and flowers, and that so far as attempted it has been equally successful in the cereals. But the experiments he details do not show how many inferior kinds of wheat were produced to an equal or a superior. The quality of some kinds, he remarks, was impaired—fine varieties produced a coarse one, and coarse varieties a fine one. Why these seeming irregularities exist we cannot tell; but when once known, there will be no limit to our power to produce hybrids, or seedlings, of any desired character. But from analogy—from what we know of fruits and vegetables—general hybridization, such as takes place by a promiscuous diffusion of pollen through the air, and when carried by insects, *results in producing a very large proportion of inferior products.* I take examples of such results from vegetables, and one from fruits.*

*At the State Fair, Professor Mapes concluded his address by showing the effects of hybridization on vegetables he found on exhibition. *They were all deteriorated*, so much so, that he remarked that they

Three years ago I saved seeds from an excellent water-melon, of the Spanish variety; I planted them to themselves the next year, and the product was five different kinds; some, in color, in seed, in shape, and especially in taste, as unlike the Spanish as one water-melon could well be from another. A large proportion was of the inferior kind.

Again: Mr. McAvoy, of Cincinnati, took a quart each of three kinds of superior strawberries, mashed them together, and sowed the seed, producing what was estimated to be about a half a million plants. These were parcelled out to various persons, and closely examined, when fruited, by a committee of the Cincinnati Horticultural Society. They rejected all except about fifty, and of these gave their premium to McAvoy's Superior—a plant worthy of it, and to be the first of a half million.

But suppose instead of thus separating the plants the whole had been promiscuously thrown together, and from year to year new seedlings produced, as is done by the farmer with his wheat, how long would it be before the whole collective crop would be regarded as unworthy of cultivation? The potato is another vegetable we may refer to. Of the seedlings produced by hybridizing but few are found equal or superior to the parents. But when one superior is obtained, it may so rapidly be multiplied that it soon can be obtained by every farmer.

If I am right in this view of the cause of the deterioration of our wheats, it will be seen that the method adopted by the Patent Office to supply better varieties is not likely to be successful. Now and then, as in the case of the white blue-stem, we may find a foreign variety adapted to our soil and climate; but how few constitutionally are adapted to either. The Monroe County Agricultural Society procured thirteen varieties from the World's Fair at London, but not one ripened early enough. They were all destroyed by the rust.

How much more scientific would it be if the Patent Office produced new home varieties by hybridization? And what greater benefit could our State University confer upon this great agricultural State of ours than to aid its further advancement, by a like course, through a professorship of agriculture? Who can calculate the value to us of a productive, early white wheat? And yet analogy assures us that such a variety could be obtained by hybridization, conducted by a scientific mind. Yet our collegiate institutions are so conducted as to fill professional classes rather than send abroad educated farmers and mechanics. And this will always be, so long as you and I are fools—suffering our votes to confer power on *others* rather than on farmers, and thus allowing the professions to be exalted over our own noble and useful pursuit. Depend upon it, you never can hope for justice from the professors in these institutions, for of all fogies they are chiefs. You must work out your salvation by the exercise of your own power. Nevertheless the day will come when flowers, and fruits, and vegetables, and the cereals, of whatever quality desired, will be produced, with the aid of science, by hybridizing.

But its laws have been more closely studied in the animal than in the vegetable kingdom; although in it, also, we know but little. Still our knowledge here is

could not be sold in the New York market. At Laporte, I noticed the same result, especially among the beets. They were blackish in color, woody in texture, with pyramidal tops, and a rough skin. These exhibited by Mr. Jewell, of Michigan City, formerly a professional gardener, were very different—a smooth reddish skin, and a square top, round the center of which grew the leaves. They were eatable—the others were not.

enough to point out important errors in common practice, in breeding our stock, and to these laws and their violation I now invite your attention.

And I do so, because stock raising must become, if it is not now, the most important agricultural interest with you; for the additional acre of the New York Tribune, with such a season as the present, so multiplies vegetable food, that prices are remunerating only through foreign demands. But the experience of the last six years indicates that in animal food the supply cannot be made equal to the home demand.

But here allow me, in self justification for omitting the most pertinent illustrations belonging to my subject, to say, that he must avoid them who is addressing an American audience not exclusively agricultural. "That universal prudery," says Mr. Brace, in his excellent work on the Home Life of Germany, "which so hampers a man in America, and makes him ignore half the facts of life, for fear of treading on some unknown delicate sensibility, is never seen in European circles."

There is an old maxim, and as true as it is old, that like produces like, but one most sadly misapplied. Here is an instance: Dining with two farmers, one a successful cattle raiser and the other a successful corn grower; whilst eating a potato, I asked whether good potatoes could be raised from small seed. "No!" said the cattle raiser, "for it would be contrary to the maxim that like produces like." "Nevertheless," remarked the other, "my experience is against the maxim, for this year I have as fine potatoes from small as from good sized seed." "And exactly my experience too," said I. Yet the maxim is a true one; but here it was misapplied, and the misapplication consisted in referring it to the *size* and not the *blood* of the potato. I use the word "blood," for we have no other to express those qualities that are transmitted by the plant to its product. Size, nevertheless, is a transmissable quality; but it is the size of the race or kind, not of the parent. But by having parents *constantly* of a size, differing from their stock or kind, their size will in time be forced on their product. Thus, if small potatoes be planted year after year, the product will soon be small. So my experience indicates.

This misapplication of maxims is a common and often dangerous error. For instance, the Spanish proverb is—"Feed a cold and starve a fever." In that language it is an admonition to beware of feeding a cold, lest a fever follow, which must be starved. But we translate it to mean not a caution, but a command—that is, to cure a cold we must feed it, and to cure a fever we must starve it.

The true application of the maxim, that like produces like, cannot be made without understanding the elementary principles of breeding, and, therefore, to these I now ask your attention. The laws of breeding are two:

1. The law of uniformity, or
2. The law of diversity, or of hybridism.

The law of uniformity has special reference to *in-and in* breeding—that is, to animals having a near consanguinity and of the same variety. Much controversy has existed about its propriety; yet the most eminent of breeders, such as Bakewell, Bates, the Collings, were "in-and in" breeders, because they could find no animals equal to their own stock. They sought to bring to their highest perfection certain qualities or points, and they would have failed in this object by crossing their stock with animals that had these points less developed than their own.

Doubtless there is much misapprehension on this subject. We grow up with a sort of very indefinite religious belief that a union of near relatives results in a weakened offspring. At the last session of our Legislature, a member of the House moved that inquiries be made of the superintendents of our benevolent asylums as to what proportion of their inmates were the offspring of parents connected by the relationship of first cousin. The answers were very deficient as to statistical facts, but very positive as to the superintendents' opinions against allowing marriages between first cousins. The member introduced a proposition to forbid such marriages, but the House would not entertain it. So you see this is a question that concerns us as citizens as well as farmers.

After a good deal of examination, the conclusion I have arrived at is, that "in-and-in" breeding is the most certain way of perfecting stock, but judgment and care are necessary to be observed.

If the stock has any marked defects among their good points, or constitutional weakness, or subject to transmissible disease, or of vicious disposition, this kind of breeding must be avoided. For certain it is that where both parents have the same defects, these will become prominent much more rapidly than their good points will be improved. But if it has none of these, a careful selection of the best for breeders, will result in a more rapid advancement than by breeding upon the second law, that of diversity. The reasons of this you will readily see when I speak of that second law as well as from its operation in crossing wheats. All that I will say here is, that in "in-and in" breeding, there is no conflict of blood, but all qualities being similar, the maxim, that like produces like, will the more readily be seen to be true.

The human race furnishes striking instances of this fact. The eye of the Asiatic has always retained its peculiar shape—so has the European eye. To-day the Jew is the same as when turned out of the Temple by our Savior,—a mere money-changer; with few instances of greatness of intellect or of enlarged philanthropy; and he will remain as he is so long as the race marry with none but of their own people.

As with the human race, so it is with animals. When, therefore, we wish to remove defects and form good points, we must rely upon the second law of breeding—that of diversity. It is the one now generally resorted to, and in the county of Monroe with this result, that no breeding animals, such as the Owens' introduced a quarter of a century ago, can be found amongst us, except the few lately brought from Kentucky. There has been with us a deterioration, because the law itself not being understood, has been constantly violated. [See my report of the State Fair—on Hogs.]

I have had the occasion to point out the difference between species and varieties. Nature has forbidden us to form new species, but not new varieties, and sub varieties. Thus of the sheep, we have the varieties of the Long, Middle and Fine wools, and of this last, the sub variety of the common Merino, the Saxon, the Spanish and the French. Between sub-varieties a cross is more readily effected than between varieties, but the nearer the varieties approach the diversities of species, the more difficult it is to form a perfect union. Thus as an illustration I refer you to the attempt to form a union, so as to obtain the disposition to fatten of the China hog with the bone and size of the Russian. The result has indicated

that such extremes cannot be effected. An intelligent gentleman informed me that his experience was that a cross of the Cotswold and common Merino was a deterioration, having not even the size and strength of the Merino. Mr. Milburn, in his work on cattle says: "A cross was attempted between the Herefords and the Devons—the fat forming Hereford and the active working Devon. The cross was a failure. The power and activety of the Devons were lost, their working qualities impaired and still they did not fatten like the Herefords. A cross of the same with the Alderny improved indeed the dairy qualities of the breed, but lost the muscle so necessary for work and the capacity for feeding, so that this cross was also a failure. Again a cross has been attempted between the Hereford and the Kyloe. This it might be supposed would improve the back of the Hereford, give hardiness, and keep up the aptitude to fatten; but no, the cross had the fattening qualities of neither, and the quietness of the Hereford was lost in the wild habits of the Kyloe."

We have seen, too, that, among the hybrids of wheat, some are longer than the parents; some shorter; some much coarser; some finer; some more vigorous and some weaker.

Crossing, then, by this law of diversity, is productive of a doubtful result, to say the least, in cases where there is much dissimilarity between the parents. And yet how common is this practice, especially in raising horses, and I may add in raising our children. How often have I seen the finest of the Kentucky stock crossed with the coarsest of our common horses. And I suppose we will soon see a cross of these with the English and French draft horses, as if a useful compound could be formed from the light and quick nervous action of our best saddle horses and the huge muscle and bone of the English draft horse.

Ask a cattle raiser what kind of a stock he wants, and the answer will be, one that has the early maturity, the aptitude to fatten and the size of the Durham, with the action of the Devon and the milking properties of the Alderney. A very desirable object indeed, but as attainable as the child's wish to have the moon for a play thing. For action and size are incompatible qualities; so is the milking property with the aptitude to fatten. Yet I occasionally see advertised a milking Durham Stock; and I often hear objections urged against the Durham because they do not milk proportionate to their size and the amount of food consumed. As if the nutriment out of which fat and muscle are formed, could also fill a distended udder with rich milk.

Incompatable extremes, whether of qualities or forms must always be avoided. Of forms especially, if we would preserve health.

A few weeks since I was in Pennsylvania, and when there, there was a wedding. The bridegroom was a fair specimen of the stoutest and largest of our race. He was, what a neighbor of mine would have called "of the human English draft horse stock." The bride as opposite, as opposite could be. Extremely small, of the slightest mould of form, and of a color indicating feeble health. As they passed the door where I was sitting with others, an old lady exclamed—"What kind of children will they have?" A very common sense enquiry; one however, that Cupid is too blind to ask. But it is answered in the enfeebled constitutions of the American people—in the rapidly growing tendency to diseases of the lungs; for there is no people of such variety of forms as the American, and therefore the

greater liability with us of ill-matched marriages. How often do we see the broad shoulders, the long limbs and heavy bone of the father, joined to the flat breast, the weak muscles, and small blood-vessel inherited from the mother, without the nervous energy of either. Of such marriages it is usually said that "God has joined them together"—I don't believe it.

And so it is with our stock. The bony structure, the muscular, and nervous and blood systems, ought always to be proportionate; yet every where we find heavy boned, slab-sided, short-winded and good-for-nothing horses, the result of these unwise attempts to form a union of extreme forms and qualities.

In all of these cases like produces like, but the qualities of the parents being diverse, and hence, frequently adverse too, the result is a deterioration.

But such injudicious breeding destroys all pedigree. Pedigree is a register of the line of ancestry, and applied to animals, it means that certain qualities have become so fixed in the race, that they transmit with certainty these qualities to their offspring. But when diverse qualities are brought together, no one can tell what of these will be or can be transmitted to the offspring; much less what of these, and to what degree, that offspring will, in its turn, transmit to its decendants. Hence arises the difference between full-bloods and thorough-breds. The first cannot, with any certainty, transmit their qualities—the last invariably do. A difference of the greatest importance, yet has our State Board of Agriculture abolished it in the present premium list, and the Agricultural Society of the District of Orange and Washington counties has made an exhibit of a pedigree a forfeiture of all right to a premium.

Seeing these great and mischievous errors exist, for such I regard them, let me give a more practical character to these remarks, by reminding you how the Durham stock has been made what it is.

The Messrs. Collings, two brothers, were the principal English breeders, who gave such celebrity to it. From time almost immemorial there existed in the county of Durham, England, a race of cattle superior to others. With these the Collings commenced. They aimed at producing a breed having early maturity, large size and great aptitude to receive fat. By pushing them forward from their birth, they impressed upon their stock, after many years, the quality of early maturity. By careful selection of those having superior points, they gradually gave them the necessary form to receive muscle or flesh to a great extent, and by keeping them always fat, they gave them the quality of rapidly fattening. These qualities finally became so fixed in their stock, that they were transmitted to the offspring, and then only they obtained a pedigree.

It is obvious, then, that this pedigree can be destroyed in two ways. First, by the introduction of conflicting qualities, through injudicious breeding, and second, by reversing the course pursued by the Collings—keeping the cattle in bad condition. Dr. Stevenson, of Putnam, informs me that the breeders of England do not allow the mother to suckle her calf; hence she is always fat, and the milking quality is never encouraged at the expense of the fattening quality. Yet we, at our Fairs, denounce fat breeding animals, and the judges are ordered to discourage the practice of keeping them very fat.

Such errors never could have been committed, had those who controlled these Fairs understood the principles of breeding. They would have every animal

judged of by its appearance alone; yet says Dr. Stevenson, in one of his letters from England, "I have seen Durham cattle selling in market for seventy five dollars, which were apparently as good animals as those that cannot be purchased for five hundred!" Whilst Ohio, Kentucky and other States are forming an American Herd Book, Indiana is seeking to abolish all distinctions between full-blood and thorough bred.

Why is it that we have no pacing stock of horses? True we have what is called the Canadian and the Copperbottom, but neither has this quality so definitely marked as to transmit it to their decendants with certainty. The pacer has a form peculiar to himself—differing much from the trotter, yet no practice is more common than to cross them. The gait of the offspring is therefore not only uncertain, but we are making no progress whatever in perfecting the pacer itself. Nor can we, so long as we thus violate physiological laws.

These are some of the errors we constantly fall into. Science alone can direct us aright, by unfolding these laws. Daguerre had first to study the laws of light, and of the metals of his plates, before he deduced the truth that the shadow could be fixed. So Morse wrought the Telegraph from the laws of electricity. And we can succeed only by conforming our efforts of improvement to the nature of the animals we raise.

What then must we do? I answer, first learn what you want. Are you a cattle breeder? what do you seek to accomplish. If to raise stock for beef, then choose the Durham, and track the course pointed by such men as Collings, just as you follow Webster when you pronounce and spell words.

Are you a dairyman? Then study Guenon, for his physiological signs of a good milker will lead you aright, and in improving your stock always select the best milkers for breeding animals, and never seek to add aptitude to fatten to the milking quality, for they are irreconcilable qualities. If the best of your milkers often disappoint you, in giving you a calf that is the worst of milkers, do not be discouraged, for the milking quality has not yet been made transmissible except among the Alderneys, Ayrshires. If you do as the Collings did, and by patient perseverance, you succeed in making the milking quality transmissible, your fortune is made.

Are you a raiser of horses? Then cross your pacers with pacers—your trotters with a Morgan; or if your stock assimilates in size and strength to the Norman or English draft horse, then cross with these.

Are you a hog raiser? If so, you want size, aptitude to fatten, and early maturity, as the characteristics of your stock. Now size and a small bone do not go together, and if you should read in some eastern agricultural paper an Englishman's praises of a small bone, recollect that he is talking of pigs, for family use as pork, and not of hogs out of which mess pork and lard are to be made. And remember, too, that early maturity and an empty corn-crib, do not journey together, nor a readiness to fatten, with exposure to wet and cold.—*Stevenson.*

Are you a wool-grower? First of all see the manufacturer of wool, and between you devise some plan to keep out a portion of the 119,000,000 pounds of wool imported into this country in 1854 in the form of woolen goods, whilst the 60,000,000 pounds of wool grown here, could find no market. After that, increase your flocks, but not by crossing your Merinos with the Bakewell or Cotswold.

Or are you one of the many who keep all these kinds of stock? Then, be assured, that you need not trouble yourself about the principles of breeding stock and the art of rearing it, for I have seen you too often to be ignorant of the fact that you never keep any of them as they ought to be kept, much less breed them as they ought to be bred. When you show me a mechanic who is a good black smith, a first rate tailor, and shoemaker, one who builds houses and makes wagons and withall is a good tinner, then I will believe that this jack of all trades in farming is judicious.

Lastly, all of you have a deep interest in the human race, for they are your children, for whom in sickness you have every anxiety, for whose loss you inconsolably mourn, and for whose well being you deem the severest trial a pleasure. Then remember the Grecian maxim—a sound mind in a sound body. I pass by their mental qualities, simply remarking that I do not concur in the observation of a writer in the New York *Tribune*, that mind is not transmissible, for I believe it is, on the principles I have just alluded to. But soundness of body—that comes within the scope of my subject, and it is that, without which life is a burthen. And yet in our marriages, how little regard is paid to the fact whether minds are uniform or diverse—whether physical properties are adapted one to the other, or whether the blood is tainted by hereditary or transmissible disease. Said a neighbor to me: "my first wife and our children died with the consumption, for she belonged to a family in which this disease was a hereditary complaint. This forced me to reflect upon the impropriety, if not sin of such marriages, and when I chose my present wife, I looked most carefully to the health of her family."

And to this result, let me add, that his children are the most healthy I know of, of vigorous mental and physical qualities, working unceasingly.

Again—a gentleman of my acquaintance has the form of perfect health, and his wife if possible, a better one. Their daughters are healthy, but their sons have the narrow slender form indicative of tendency to consumption. Three of them have died of this disease, and after the death of the first one, I asked him whether it was not a hereditary disease in his family. He seemed amazed at such a question—referred to his own and his wife's form—their uniform good health and to the long lives of their parents. But after the death of the third son, he said, that after my remark he had made more particular enquiries, and had ascertained that one of his father's brothers had died of this disease. Such is blood—whether tainted by disease or crossed improperly, that taint or impurity often disappears, but only to become visible when least expected. For the law is, that like produces like—not as to the mere form and health of parents, but according to the blood, for as we have just seen, this blood will clothe itself in the form characteristic of it. Aristocracy boasts of its genealogy—the pedigree of our stock is carefully recorded. Is it rational to disregard physiological laws, so materially controlling the well being of our children?

But I am detaining you too long. I know something of the studies belonging to Medicine—I have practiced Law, until I was familiar with it, and I hesitate not in declaring that Agriculture draws more largely on the intellect than either, or indeed, than both of these professions. The maxim of the Law is, that he knows not the law who knoweth not the reason thereof—a maxim that ought to be applied to every pursuit of life, and to Agriculture more than to all others. For as

a Science and an Art it is the greatest of all occupations—it is greatest in the variety and extent of knowledge, and in the accuracy of observation and of thought it demands; and greatest, too, in its utility. And being such, in dignity, it ought to be regarded as second to no other of human pursuits.

ADDRESS

Delivered before the Franklin County Agricultural Society, June 2, 1855.

BY JOHN P. BRADY, ESQ.

For three successive years I have engaged in and watched over the deliberations of your Society, and during all that period, I fancy to myself, that the business of the Society was conducted in the way best calculated to promote her interest, and advance the cause of the farmer and mechanic generally. But no sooner, however, did I forego the pleasure of meeting with you, on but one occasion, than I find your proceedings marked with one act, which to me appears rather inconsiderate, and that is, the appointment of one so utterly incompetent as myself to address you on this occasion.

Those of you who have stood associated with me in the discharge of the duties devolving upon us as officers of our Society, must surely have learned, ere this that I neither possess the tact, nor claim the ability, of delivering even a commonplace address, much less one worthy the attention and consideration of the farmers and mechanics of our county.

Under such impressions, I presume you will deem it no marvel why I feel so much diffidence in appearing before you in the attitude I now stand; knowing, as I verily do, my inability to instruct or profit you on the present occasion. I profess, however, to belong to, and trust I stand associated with that class of individuals, recognizing the potency or importance of the small word "TRY," and shall therefore claim your attention for a brief space of time, while I hope to be able to present a few thoughts which may at least serve as a pastime, if nothing more.

Having spent my life, thus far, upon a farm, is of itself sufficient to justify me in calling your attention to such subjects in connection therewith as may present themselves to my mind.

In order to be a successful farmer, it is highly requisite to have a good farm; and, if comfort is sought after, that farm should not be too large. Many are the evils growing out of the natural propensity for acquiring large possessions, particularly where an individual is ambitious to add farm to farm, without any inclination to improve and properly cultivate the farms thus acquired. That community made up of individuals owning from eighty to one hundred and sixty acres of land

each, possesses infinite advantages over other districts of country, where the land is in the possession of but a comparative few of the settlers.

I presume most, if not all, now present have a *home*, and that home, generally speaking, is composed of a tract of land of sufficient size to constitute what is usually termed a farm. It is one thing, however, to be in possession of a farm, and another to improve and enjoy it, as we may do, and as I have frequently been led to believe duty requires we should do. By way of contrast, accompany me for a few moments to yon two farms, the one on the left, the other on the right of the road.

These farms have been in the immediate possession, and under the control of their present owners for the last twenty years, are of equal size, and the soil and natural advantages about the same. As you approach the one on the left, you readily perceive its uncomely appearance. Not one square field to be seen; not scarcely one good pannel of fence; few buildings, and those of an inferior quality and in quite a dilapidated condition. No garden deserving the name, nor fruit of any kind, save a few worthless apples, which occasionally grow on those scrubby trees that have miraculously escaped the jaws of the hungry animals. Few bars, and their condition such as to render them useless, and not one gate on the premises. Another view presents to you that unsightly run, with those wet marshy places on either side, which render quite a large portion of two fields unproductive and disagreeable to farm. As also you have before you nature's plan of furnishing blackberries, elderberries, and such other things as usually spring up and grow in fence corners, around stumps, along runs, &c.

We shall let the cursory view we have now taken suffice for the present and pass over the way to the farm on the right. At first view, symmetry and order appear visible in every direction. The arrangement of the farm is such as to add materially to every natural advantage. Fences good; fields square; the requisite number of buildings skillfully constructed and judiciously arranged; a good garden, properly inclosed and prudently cultivated; fruit trees of various kinds, embracing the apple, pear, peach, plum, cherry, &c., all of which bear the marks of prudent cultivation, and are found to produce the most valuable fruit of the different species. Bars or gates are always found in sufficient numbers to serve as an entrance to each field or lot, and each in such order as to render them truly valuable and convenient. The run which passed in almost every direction through yon farm also continues its course through this; but how different in appearance—instead of the unsightly view there manifest, we here behold a beautiful stream of water, gliding swiftly along a straight ditch, and each marshy place is rendered highly productive by means of under-drains properly connected therewith. As a matter of course you would scarcely expect to feast much upon wild fruits produced on such a farm as this, nor will you; because neither brier, elder, nor bush of any kind is to be seen on all the premises.

The great contrast in the management of the two farms is amply sufficient to justify the inquiry, why is it so? and by your consent we will yet tarry long enough to become fully initiated into the secret. As luck will have it, Mr. A. just approaches and signifies his willingness to answer such questions as may be propounded to him, by which I feel authorized to inquire,

First—How many acres of land do you own in this tract? "One hundred and twenty," answered Mr. A.

Second—How long since you planted out yon thrifty orchard? "Twenty years," replied Mr. A., "and by your permission I'll just here add that I purchased this farm twenty years ago last spring, not then knowing whether I should continue it as a permanent residence for myself or not. I immediately, however, set about preparing for an orchard, and spared no reasonable pains in procuring a good selection of fruit trees, fully conscious that if I never enjoyed any fruits therefrom, my labors would be duly appreciated by those who might succeed me on the farm."

Third—What is your opinion in reference to the most proper size for a farm, where comfort, society, &c., is taken into account? "With twenty years experience, I am led to believe that farms, ranging in size from 80 to 160 acres each, are best adapted to carry out and subserve the objects above contemplated; and let the farm be large or small, I deem it the duty of all persons to try and make their homes as comfortable and as attractive as possible, while they continue to occupy them."

We have thus arrived at some of the motives which prompted our friend A. in the course he has pursued, and learned from him this important lesson, that contentment is a rich boon indeed, leaving behind it many traces worthy our consideration.

We shall now return by way of our neighbor on the left, and ascertain from him the true cause which has led to the present condition of his farm.

Says neighbor B: "I purchased this farm twenty years since, and moved on it immediately, thinking it was large enough to answer my purpose. I soon found, however, that 120 acres of land was not enough to constitute a comfortable farm; and hence I became rather dissatisfied, and soon came to the conclusion to either purchase an additional tract of land, or sell and remove away, neither of which I have yet accomplished."

Well, sir, I suppose you frequently meet with neighbor A., just yonder to the right, and doubtless have often conversed with him upon the subject.

"O yes, we have frequent interviews together, and indeed, to tell the plain truth, I like very much to visit that neighbor often, for it is rare indeed that I find him without the choicest of fruit, and that is such a luxury to me; and, by the by, he is always ready to share with a neighbor."

I understand you to say that you are fond of fruit; then how comes it that yon have so little prospect of fruit, after a residence of twenty years on the same premises?

"Well, as I have already intimated, my farm is so small as to offer but few inducements for me to stay here; and, in all probability, if I was to go to the expense of putting out an orchard here, I should not realize any of the fruit, which to me would be truly mortifying. I frankly confess, however, that I almost envy the situation of neighbor A. at times, and not unfrequently feel regret that fortune had not placed within my reach a large farm when I first started out in the world."

We have thus pursued our inquiries far enough to answer our purpose for the present, and shall therefore return again to consider a few things which, above all others, appear to claim our attention.

HOME, in the strict sense of the word, should always possess more or less charms to every individual; and that person who can spend a lifetime without being attracted with some objects around him, surely fails to enjoy the pleasures of life, and but illy fills up his place in the world.

I hold that, whether farmers or mechanics, lawyers or doctors, we are alike under obligation to do all that is reasonably within our power to promote the happiness of our families, and make home as attractive as possible. To do this requires not only our attention, but our labor and council; and he who would in the least feel degraded to be caught at labor, most generally fails to make his family contented and happy.

I am well aware that labor has been regarded by some as dishonorable, in all ages of the world; but that those false impressions should be gaining ground in this, our day, is truly mortifying to me, and I verily believe should be to every well wisher of the young and rising generation.

I ask, why should the farmer and mechanic be looked upon as rather degraded beings, and their sons and daughters regarded as unworthy the society and friendship of a portion of community, while indeed were it not for them this beloved America would soon be shorn of the many charms she now possesses, and become a by-word and reproach for other nations?

I maintain, therefore, that labor is honorable, and should be regarded so by every American citizen. Not only so, but I verily believe it to be the duty of all able bodied persons to employ themselves in some way, that at least a portion of their time may be devoted to the maintainance of themselves and families.

I deem it the duty, and feel truly, to urge upon every parent the necessity of training up their families to industrious habits. Be sure and impress upon the minds of your children the great importance of knowing how to work, and the necessity of acquiring that knowledge while young and such favorable opportunities offer.

Friendly hearer, have you then a farm, be not ashamed to labor; for verily if you are the facts will soon be known to all around you. Rest assured, the calling and pursuits of the farmer requires industrious habits; frequently claiming not only exercise of thought, but the best judgment of the mind; and nothing short of due diligence and care will save from waste certain portions of almost every crop.

Never turn your attention to any object nor engage in any pursuit whatever, unless those things have been well matured, and give full evidence of being worthy of such attention; then be sure and commence in the right way, at the proper season, and prosperity will most likely attend you in all your undertakings.

If your farm is new and but partly cleared up, you must expect to labor under many discouragements and disadvantages; but do not despair and conclude your farm is too small, until at least you have fully tested your alacrity to properly cultivate and manage a larger one. Your mind has already been directed to yon two farms, you have witnessed the situation of each of them, and learned from their proprietors the causes which have led to the contrast so visible, even to the most careless observer.

Now, which of the two will you pattern after—the one on the left, who is continually lamenting his bad fortune in not having a larger farm, when indeed the

one he now possesses presents such a poor state of cultivation, or of the one on the right, who manifests such contentment and gives full evidence of the sincerity of his declaration, that it is "the duty of all persons to try and make their homes as comfortable and attracting as possible?"

I trust each of you are prepared and ready to say, "I would most cheerfully pattern after neighbor A., on the right, could I but gain the necessary information to enable me to beautify and improve my farm as he has done."

The desire of the heart and consent of the mind being now obtained, shall we not scrutinize more closely the manner in which our friend on the right transacts all his business. Recollect the farm was purchased twenty years since, and you thrifty and beautiful orchard almost instantly planted out; a fact worthy the remembrance and imitation of every landholder.

The acquisition of fruit is not the work of a day, month, or year; and hence the great necessity of embracing the earliest opportunity of putting out orchards, and while engaged in the business, be sure and procure the best selection of fruit possible; and, I would add, plant the trees rather further apart than recommended by my friend, A. B. Line, Esq., say 36 or 40 feet instead of 32.

Again we see in the arrangement and fencing of the farm something worthy our attention. Each field seems perfectly square, and if you observe closely you cannot but discover how straight the fences appear, and none of them laid up with less than 4½ feet worm. In addition to which, we must not fail to examine this substantial and convenient gate. See, it swings freely, and occupies just the place that makes it most convenient. If we had time we would be pleased to make an estimate of the saving of labor produced by this one gate in the course of a year; but as other things claim our attention we must pass on.

Do you see yon beautiful stream of water? It is but a continuance of the same run that looks so bad on yon farm, on the left, which has been rendered thus pleasant by means of one open drain, together with some short under-drains. Upon examination, it will be found that there are several under-drains on the premises, which effectually carry off the water from various wet and marshy places, and fully prepares the ground for successful and profitable cultivation.

The spring is now over, and corn, oats, and flax are in the ground. From the appearance of the oats and flax one would readily judge that the ground had been neatly broken up and the seed evenly sown, after which it received but one harrowing, and that in lands just as the ground was plowed, and while the same yet remained fresh.

The corn also appears to good advantage; and those straight and evenly laid off rows will be found quite convenient in tending the crop, and also when the ground is again to be broken up next spring.

Upon examination, the buildings are found to be substantial in their construction and admirably adapted to the purposes intended, affording alike comfort and convenience.

The garden, too, has not been neglected, nor do you hear one intimation that it is an unprofitable appendage to a farm.

Those evergreens, also, appear beautiful to the sight, and are so well calculated during the winter's blasts to remind us of the beauties of spring, when all nature will again stand dressed in its living green.

We have now examined the premises more minutely, and I trust you feel disposed to imitate the example rather than envy the situation and good fortune of our friend.

A few words more by way of recapitulation, and in a summary manner, and I have done for the present. You have already learned from me my firm belief, that it is the bounded duty of all persons to engage in some pursuit, at least a portion of their time. Those who elect to discharge that duty on the farm, will always find plenty to claim attention; and happy are they who cheerfully answer to and punctually fulfill every engagement.

Early farming, generally speaking, proves the most successful; and where a piece of sward ground is designed for corn in the spring, it facilitates our business much to have it broken up in the fall, or during an open spell in the winter previous, and not unfrequently secures our crop from the ravages of the worms. In order to profitable and successful cultivation, we want good implements; and rest assured that the individual who is content to purchase inferior articles because they appear cheap, stands much in his own light, and dearly pays for his short-sightedness.

Keep a vigilant eye to your orchard, and properly prune and cultivate the same; for nothing short of strict attention will secure our young trees from the ravages of the worms, which have lately made their appearance in our vicinity. I regard them as being the most fatal to fruit trees of anything we have to combat with; and truly here their ravages have been much greater than as yet ascertained.

All the manure that remains yet about the barn should be carefully removed and placed on the ground that you design for wheat this fall. I presume no argument will be necessary to convince you that such is the best policy, after the many demonstrations you have had, and may yet witness, in the present wheat crop.

In short, plow deep and well; secure your farm implements as much as possible from rain and sunshine; try and promote the happiness of all around you; and whatever you attempt to do "be sure you are right, and then go ahead."

ESSAY

Delivered before the Dearborn County Agricultural Society.

BY JUDGE COTTON, OF DEARBORN COUNTY.

Having bountifully supplied myself with pens, ink and paper, I set me down to respond to your call for an Agricultural Essay.

Presuming that you desire to elicit practical truths of general utility for our people, and not a blank sheet, for brevity's sake, marked essay, I have gone somewhat lengthily into the true merits of the question, as you will readily perceive.

And if it be true in essays as other things, that "vanity is the spice of life, that gives it all its flavor," or, in "sportsman's phrase," that "scattering shots hit the most birds," then you may set this down for "SOME" in its line. And as I have passed along, I have been careful to "gather up the fragments that nothing be lost," which I have marked by reference and appended below, so that, should your committee "honor my draft," they can either accept or reject my side view references to which I refer; or, they can simply adopt the essay proper, and recommend that the references be published as appended.

Having resided in the State, and county of Dearborn, for thirty-seven long, eventful years—years of "onward and rapid progress"—and having all the while been more or less personally employed in Agricultural and Horticultural pursuits, as well as in the discharge of official and professional duties—and from my general acquaintance, general reading, and general observation, I surely ought, and think I do, fully understand the kind of agricultural information which the masses of our farmers seem to require at this period of our Agricultural and Horticultural history. I have, therefore, presumed to come in honorable competition with other distinguished gentlemen for "the Premium Agricultural Essay." I shall not, however, attempt to be profoundly learned, scientific, or systematic, but I shall aim at general utility and applicability, using such terms and illustrations as all can readily comprehend, and fully and clearly understand. Such an essay as this has never yet been written out in due form and probably never will be again, and that, to me at least, is the good of it.

Should your committee render their award to another, but deem this of sufficient merit to justify its publication, then in that case I place it at their disposal as a free will offering, frankly, freely, and cheerfully—though the dimes would be as convenient, and jingle as well in my pocket as in that of any other man. But enough of this, and I pass to the pleasing task before me: Agriculture, as we all know, is a time honored calling. It has engrossed both the mental and the physical energies of the mass of mankind in all ages of the world, from time's first earliest dawn—from the days of old Father Adam down to the days of printing presses, steamboats, railroads, and telegraphs—down to us. Man was first created out of the dust of the earth, and the lives and comfort of all his numerous progeny are garnered up in the earth to be drawn forth as occasion may require, by the cultivation of the soil, and "in the sweat of the brow." To produce the greatest amount of productions, by the least labor, and with the least tax upon earth's rich and deep resources, "the laws of Nature should be thoroughly understood, and carefully observed." The time must and will come, when the sun of science will shed its effulgent rays in noon day splendor upon agricultural pursuits. Its glorious dawn is upon us—but it lingers yet in the distance.

The learned talk about chemical analysis and affinities, about retorts and crucibles. But how few of our people comparatively speaking, of our farmers especially, know what these terms mean. How few ever seen a crucible or retort—much less know how to use them, and in a qualified sense it is no disparagement to them that it is so. They have little time, and few and limited opportunities for becoming "scientific farmers." "Felling the forest" and improving the country as best they could, has given ample scope to all their energies and all their means. And who shall say that they have not performed wonders, and richly deserve "the

mede of praise." What was Indiana—what was even old Dearborn, some thirty-seven years ago when your essayist located himself in it? Almost an unbroken and "howling wilderness." Now it is as the "garden of God." While these great improvements have been progressing, they have mainly to rely upon scientific investigations and reports of the learned, but more upon their own observation and experience—contenting themselves to know that certain operations would produce such and such results without stopping to enquire, or being able to comprehend "the whys and the wherefores."

With the rising generation there will be little excuse for not being scientific, as well as practical farmers. Then agriculture, which for ages has been poor pay, and regarded as a somewhat reproachful drudgery, will be an honorable, pleasing and profitable employment. The farmer, more than any other man, if he does not scientifically understand the mysterious and secret workings, should at least *carefully observe* and apply nature's uniform and unvarying laws to his "high vocation," for it is at the *root* of all the wealth and prosperity of the country. And until the farmers of a community have advanced to the highest state of "scientific observation" at least, the country cannot rise to its highest rank in "wealth and commerce." And yet I repeat, that farmers generally cannot become profound chemists or mathematicians. The vigor and labor of their calling seems utterly to forbid it. But they can *observe* things and profit by them; and that is the point I am arriving at. Its application is simple and accessible to all, and its benefits not a few.

Men know from mere observation that heavy bodies fall *to* the earth instead of *from* it—that water flows down hill, instead of up, and for all practical purposes it answers them as well as though they understood the laws of gravitation. That is a luxury enjoyed by the men of books only.

Ladies know that fanning themselves in warm weather produces a very cooling and pleasant sensation, and many of them "fan on, and fan ever," without being able to assign any other reason than, "it is so, because it is so." Removing the warm air and the cool air rushing in to supply its place, has never entered into the imagination, yet from observation alone they obtain the full benefit of the operation, except the luxury of knowing why it is so.

So farmers may become masters of their calling, and drive a profitable business too, at that, without being able to account for the productiveness of their labor—save that "it is so, because it is so." And to some extent, it must and will ever remain so, from the nature of their avocation and the relation of things. And these are not intended as discouraging and reproachful suggestions, but contrawise. And yet I must be permitted to say, that it has ever been a matter of surprise and wonder to me, that so many persons when out of active employment, while away days, weeks and months, in any manner—to "lull, or wear dull time away," when nature's rich and beauteous volume lies outspread before them, presenting so many amusing and useful subjects for their profitable, and agreeable contemplation—and "books of science" to aid them in their investigations, are so numerous, and so easily obtained. What are "the pleasures of idleness, of the cup, and the weed," compared to the pleasures of a cultivated intellect? (Reference—*a*.)

It is a matter of surprise and wonder, to one altogether unacquainted with natural philosophy and chemistry, to behold waving oceans of grain maturing

vigorously and fair, in the midst of a dry season—and if he directs his attention to the mountain summit, or sloped hill side, he is still more perplexed to see any thing so fresh and luxuriant—he is curious to know whence cometh the moisture that feeds and sustains "the vegetable kingdom." We would all at first sight naturally suppose that all the water would sink, or filtrate through the earth until it found its level below, leaving the upper surface "as dry as an ash heap," as we say. But the reverse of this is known to be true, and science thus explains the mystery to consist in capillary attraction. That is the nature and power of the earth to absorb or take up water, as with a sponge. In this manner moisture is drawn up from oceans, rivers, lakes and ponds, to the most distant mountain summit. Every one knows, whether he knows the reason or not, that the ground does not become dry to a depth proportionate with the extent of the drouth, and it is accounted for on this principle and in no other way. Any one who is curious, can illustrate this by holding a lump of dry earth right plumb over water so that it can just touch it; in a few moments the whole lump will be moistened. Capillary attraction performs many important offices in nature's vast domain, that could be performed in no other manner, and, but for the knowledge of which, would forever remain "a sealed book." O! what foresight, wisdom, power and goodness, are here exhibited by the all wise Creator, in the secret movings and mysterious laws of nature. What if this single provision had been overlooked? And this is only *one* of the thousands of instances of His providence and care. How then shall mortals sufficiently adore Him?

Having said this much to arouse the mind to proper reflection and *observation*, I pass to ascertain if we may obtain the amount of advantage pecuniarily to be derived from this knowledge by the husbandman.

Many farmers are at a loss to know how to manage their crops in a dry season. Some say keep "the plough and hoe" moving. Others say "better let it be." But a thorough understanding of this provision in nature, either from books or *observation*, will enable all to decide aright. If the earth be unmoved, "books or no books," all know that the earth will bake—crevices will soon appear and daily enlarge—the sun and heat will penetrate them, and dry up the moisture before it can reach the roots of the plants, and consequently they must droop if not die. On the contrary, if the surface be kept loose and fine, the earth will retain its moisture which it is constantly sending up, as we have shown, to nourish and mature the plant, and will keep them green and flourishing through a long and burning drouth. And of course the deeper the ground is broken up at first, and the finer and looser the surface is kept, the greater the protection. In all dry seasons keep the plough and hoe moving, whether your land be foul or clean, and move soon after a rain to prevent baking, which would otherwise soon take place. Deep plowing, especially in preparing the land for a crop, cannot be too strongly urged upon all, for reasons every where seen, if not understood. Lands that are only half broken up—just skimmed over as we say, will never more than half produce, under the very best subsequent system of tillage even in a favorable season, and in a dry season, a most discouraging and ruinous result is sure to follow, because the roots are necessarily contracted and forced to occupy a narrow space, and that too, just upon the very surface. But in deep plowing, great benefit is derived in any season. If dry, the roots can penetrate deeply into the earth,

gathering strength and nourishment independent of rain—if wet, the water sinks down into it, below the main roots, and is there stored away as in a reservoir upon which the plants can draw sustenance *ad libitum*, as a latinist would say, that is at pleasure. But how to plow is the query. It has been facetiously said, that not one farmer in ten knows how to plow. Certainly if he rides upon his plough handles or boosts them up, he don't know how to plow. Away with it and get one that works light and easy. If he plows only four inches deep, when it should be twice or thrice that depth, he don't know how to plow. If he plows his hillsides all straight up and down, he don't know how to plow. What! circular furrows round the hillside say you?—how would that look. Well let it look—your soil would not only look, but be much better thus left in the field, than it would rushing down amain, and floating off in some brook or river to the ocean—would it not think ye? If you know how to plow, you won't plow just on purpose to have your lands all wash away, merely because some "old fogy" tells you to plow straight. Moreover making crooked furrows is not always crooked plowing. Nor does a good plowman ever plow his "head land" while turning his team, to be trod down hard, but plows that afterwards. Perfect plowing consists in stirring, and thoroughly pulverizing all the soil to a certain even depth. To effect this the furrows should be parallel, of even depth and width, and not too far asunder, with not a wreck of bones, but a team sufficiently strong, bidable and active, hitched to a plough adapted to the work to be done. The idea of "a universal plow" in this age of improvement, is a ridiculous fallacy to him who knows how to plow. My friend, do you know how to plow? Some plow their side hills shallow to prevent the soil from all washing off—the very thing to produce that much dreaded result—the loose earth being shallow, soon becomes surcharged with the rain, and then with it goes, rushing headlong down hill, whereas if the loose earth were of sufficient depth to absorb the water, not a single particle would be lost—not one. We have all seen the illustration a thousand times perhaps, though we may not have noticed, or if noticed, may not have understood it. Who has not observed the great difference in the wash of a hill facing north or south? Why should a hill facing south, wash so much worse than one facing north? Aye, why should it? All know or ought to know, that the greatest wash takes place in the opening spring thaw, and this is the explanation, plain, simple and natural. The thaw begins at the very bottom of the hill facing south, the freezing and thawing finally separate the particles of earth, and as it thaws the snow above melts and sweeps off; the last snow to melt is at the very top of the hill and the plain above, and the wash is thus kept up. The very reverse is true on the other side of the hill—the snow melts first upon the plain and hill top, and rushes down on a frozen surface; the last to thaw is the very foot of the hill, which prevents wash and waste, all simple when understood. And hence, hillsides facing south should as soon and as much as possible, be kept in grass. If the thaw at the foot of the hill could be deep enough to absorb all the water as the snow melted, the evil would be obviated, and hence deep plowing, even upon the side hill. Another illustration, you pour water upon ashes in a barrel to obtain lye for domestic purposes, but you get not a particle until it becomes so overcharged that it can contain and retain no more, and then it passes off to your purpose, but even then it don't drain itself dry, and never would, but for the sun and atmosphere coming in contact with it and drying it out. Empty a barrel a month after you have used

it, and it will be found "wet as muck," owing to capillary attraction as noticed. Friends, think of these simple truths in nature, and profit by them (*b*).

The strongest argument known in favor of deep plowing every where, perhaps is this—every shower of rain is loaded with a fertilizing quality called *ammonia*, which is a kind of gas thrown off from decayed vegetable and animal substances, taken up into the clouds by the sun and atmosphere, and is in due time brought back by the fruitful and refreshing shower. If the loose earth be deep enough to absorb all the rain, it retains all the *ammonia* to feed and perfect the growing vegetation. Now if a man possessing a poor, barren, worn out farm, could know that at a certain time a shower of manure would actually fall broadcast upon his entire plantation, side hills and all, don't you think he would "laugh outright," and be up and doing to secure it from wash and waste? Aye would he. And what is manure but food for vegetation? And this I repeat, he gets in every shower, if he will only preserve it.

Your own observation, with a little reflection, will convince all of this great agricultural and philosophical truth. Do not all know that if plants are watered with water fresh from the spring or well, it will turn them yellow, and injure rather than improve them? Water from the cistern will do a little better; but water dropping down fresh from the clouds, with just the same temperature, will refresh and invigorate, many fold, any and every plant upon which it falls. How things "look up" after a refreshing shower, like a hungry man after "a feast of fat things"—and for the sole and simple reason that we have here given. And for the very same indentical reason, the gentle dews of heaven, that rightly distill upon the earth, produce precisely the same effect upon a small scale (*e*).

Now, if the farmer could at pleasure produce heavy dews, you will all admit that his crop would thrive and mature with little or no rain. Well, now, I undertake to demonstrate that he can increase the falling dew. Let us examine this nice subject a little—it cannot fail to be both interesting and profitable.

What is dew? It is rain upon a very small scale. What produces it? The state of the atmosphere. Warm water, as we have shown, will not contain or retain as much lime or alkali as cold water, and it is equally true that a warm atmosphere will contain more water than a cold atmosphere. You have seen this demonstrated "many a time and oft," though you may not have understood it. Who has not often seen a tin bucket or a jug full of water, setting under a cool shade in the meadow or harvest field, all dripping wet, upon the outside, with what we usually call sweat, and how many have puzzled their brains to account for it? Some seem really to suppose that it oozes through the vessel like sweat from the body, and hence the name; but if they once look into the vessel they find the contents undiminished. You will have noticed that it never occurs except in a hot, sultry day, when the air is still. The water, being much colder than the surrounding atmosphere, cools the air for some distance round, just as fire would heat a cold atmosphere. As the air becomes cool it loses its power to retain all the moisture it contained, and of course sends it off in fine, imperceptible particles, like dew, as it really is, which, being attracted to the cold body, produces this wonderful phenomena. This is the beautiful explanation which both science and observation give (*c*).

Then, by cooling the surface of the field we obtain dew. This can be effected by deep plowing. The surface being fine and loose, the coolness from below rises up through it, "all the livelong night," producing an abundance of dew, as in the case of the bucket or jug. Like Columbus' egg—like everything else—all perfectly simple when you once understand it. Excepting the mental luxury, which is always the richest boon of all, we may by mere observation enjoy the full benefit of an effect without knowing the cause.

It is no disparagement to "the venerable pioneers of the west," to say that they have had neither the time nor the means scientifically to investigate and comprehend these things; and hence I am thus particular in my illustrations What do we not owe to them for their privations, their sweat and toil? And, besides, I want the young, who are soon to succeed us in "the grand drama of life," to understand, improve upon, and enjoy the full benefit and pleasure of these things at the very threshold of their coming, and, I would fain hope, honorable and brilliant career.

Dews revive plants not so much by getting at their roots as by absorption through their leaves, which are very porous and perform as important offices in the vegetable as do the "lungs and pores" in the animal kingdom. You can kill any plant by constantly plucking the leaves; and hence it is that sheep will kill out briars, &c., better than any other animal, and perhaps better than any other way. In the midst of a hot day, in a dry time, usually the leaves of your corn wilt and curl up, but the dews of the night will so invigorate and improve them, that by morning they look fresh and fair again. This is not alone the effect of the water, but the ammonia or vegetable substance contained in it. Having discharged "its load of benefits," as the sun warms the atmosphere it is taken up again, to be sent back in the evening with a renewal of its kink offices.

We have said that ammonia is the food of plants—that it is a kind of gaseous matter flying off from decaying vegetable and animal substances, which is taken up into the atmosphere, and in due time is returned to the earth in rain and dew. You come in contact with a dead body, and long before you reach it you are admonished by your olfactories of your approach towards it (*d*). All the atmosphere around and above, within a given space, is highly charged with the offensive effluvia, or particles flying off through decomposition, until all is consumed, not lost—nothing is lost—nothing can be, until

"The wreck of matter and the crush of worlds."

And not even then, perhaps. What an overwhelming thought! Ammonia is the real "bread and butter" of vegetation. How important for farmers to understand science and appropriate it to the purposes of their high calling. An old adage has it thus:

"Plow deep while sluggards sleep,
And you shall have corn to sell and to keep."

We say once for all, and in the light of science, reason, and observation, break up deep, plow well and plow often, whether your lands be foul or clean. This year I had two pieces of corn, one much better than the other, and both clean. I chanced to plow the poorer piece once the most, and now it is decidedly the better

piece by far. The philosophy is in keeping the ground loose so that the air can circulate through it freely—increasing the amount of dew, and bringing up from the depths of the earth an ascending current of moisture and nourishment, to mature and perfect the crop, as shown above.

A new and somewhat novel opinion is, that the simple act of tearing asunder the roots will improve the yield. I think differently—that the philosophy of constant plowing is in the reasons which I have just given. I also see that reports from the Patent Office recommend that the last plowings should be shallow, *expressly* to avoid rupturing the roots. The new suggestion, however, emanating from a distinguished chemist and agriculturist, as it does, is entitled to much respect; and our farmers would do well to test the theory by plowing some shallow and some deep the last time.

If understood, I have perhaps said quite enough about capillary attraction—ammonia—the plow, the rain, and the dew, and pass to consider briefly the composition of soils and the rotation of crops.

All arable or tillable soils are composed chiefly of sand, clay or lime, mixed with small particles or quantities of inorganic matter—the refuse of decomposed vegetable and animal substances—and these, to be productive, should be mixed, either naturally or artificially, in due proportions and with chemical exactness; because observation and experience, as well as the book, clearly demonstrate that all possible compound are formed by nature in *immutable proportion;* and the doctrine of *chemical equivalents* should be thoroughly investigated and well understood by every agriculturist, and must be, before he is "master of his noble calling."

We all know that all sand, or all clay, or all lime will not produce—the reason chemical analysis and scientific investigation comprehends and explains. When, therefore, either sand, clay, or lime are too abundant, they should be forthwith artificially diminished, or equalized, by increasing the deficient property, and *vice versa*, when they are deficient they should be supplied. The effort might prove abortive on deep sandy soils, because you could not reach its deep laid foundation; but with a clay soil, a good dressing of pure sand, well mixed in, would make another soil altogether, and would pay well and no mistake, try it who may; and in no place would it pay better than in the garden. It keeps the soil loose and warm, and effectually prevents baking. Then roots growing in a sandy soil are always so sweet and so clean. Don't you know that? Well don't forget it.

The ability of the soil to absorb heat in a loose state, is a matter of the first importance—it is absolutely necessary to successful husbandry. The darker the soil the looser it is, the better it will absorb heat, and everybody knows that the better it will produce, all things else being equal, although they may not know the reason as here explained. This principle of absorbing heat is illustrated in the notorious fact that a black coat is much warmer on a hot day than a white one of the very same materials. So, too, all must have observed that snow melts much sooner upon dark than upon light colored soils; and yet thousands will live and die knowing the fact from *observation* but not the *reason*.

Even the color of the soil, then, is obviously a matter of great importance, and may and always will be darkened and improved by decayed vegetable and animal substances; also, by what is called *muck* from a marsh, or from the margin of a

river, lake, or pond. But the most ready and effectual way is by a free and liberal application of compost or stable manure. This is killing many birds with one stone—it darkens, enriches, enlivens, and warms, all at the same time, greatly facilitating the germination of seeds and extending and expanding what is learnedly called the *spangioles*, or feeling ends of the roots, thus enabling them to absorb or take up a larger amount of nutritious matter, upon which its productiveness greatly depends.

The condition of the soil with regard to water, too, should be carefully attended to. When the water or moisture is insufficient, plants in the very best of soils will droop and die, or yield comparatively little. Hence the pains we have taken to show how to remedy the evil. So, on the other hand, when there is too much water in the soil it prevents a free circulation of the air; the roots become diseased, or are drowned out, as we usually say, and die of a kind of strangulation, and all is lost. Hence it is that low, marshy lands should be drained deep enough to bring the level of the water below the roots of the plants, that they may have free access to all the elements of their composition. Oxygen, nitrogen, and carbonic gases, of which all vegetation is measurably composed, must be brought in contact with the plant in due and proper proportion, and all in due time. Cultivation cannot successfully be carried on without it. The books say that plants receive their nitrogen chiefly from the ammonia in the atmosphere, which, from the rain, the dew, and the air, passing into the soil, deposit, for this express purpose; carbon, to the amount of about one-third, is supplied in the same manner, and oxygen from the open air; and to be productive, available, and useful, all must be harmoniously blended, in due time and in exact proportion, as shown above.

How, then, can we properly appreciate scientific investigation in relation to the composition, the cultivation, and the improvement of various soils? Science has wrought wonders by way of inventing and improving machinery, constructing canals, railroads, and telegraphs; but it has done, and will do, much more for the country by showing how to make barren lands productive and how to keep them so.

Young gentlemen—boys—what a field of usefulness and honor lies just before you! Set your mark high; cultivate both your minds and your morals, and you may yet eclipse all your predecessors in scientific discourse—enrolling your names high upon "scroll of fame."

"Rotation in crops" will now claim our attention. A man who has become quite weary by walking may rest himself by riding; and so, too, all know, changing a bucket of water from one hand to the other gives sensible relief. So, by changing the kind of crop we relieve the exhausted or weary soil. Corn makes a greater draft upon one vegetable property of the soil than wheat, rye, oats, barley, or potatoes, &c.; and these in their turn do precisely the same thing.

After one crop has made a heavy draft upon the soil, by changing we give it time to recruit and refresh itself; and it will as assuredly do so as the weary traveler rests by getting "a ride."

Crops that should follow each other should be determined by the soil and the circumstances in the sound discretion of the farmer Soils are not only improved by rotation but by actual repose. Both men and animals, not more than the earth, demand it. Farmers who "summer fallow" their grain lands, in the end make by

the operation. Nature herself, in spite of our over taxing, gives the earth occasional repose—binds her in her "icy fetters," and puts her to sleep beneath this, to her, very comfortable overspread,

"The hoary frost and the fleecy snow."

Long continued drouths is another of nature's plans to give the earth repose, and is as essential to continued productiveness as the fruitful shower or the gentle dew. We are apt to murmur and complain at a drouth, if long continued, when indeed both Nature and Providence are sending us their choicest blessings in disguise. I will now explain the whole operation to your entire satisfaction.

Drouths replenish the surface soil with the mineral substances which have been consumed by vegetation, or carried off to the ocean by excessive rains. These two causes alone, without any counteracting agency, would in time render this beautiful green earth "a barren waste," in which no verdure would quicken—no solitary plant take root. But drouths counteract or supply this waste of nature in the following manner:

The evaporation from the surface creates a vacuum, so far as moisture is concerned, which, as we have shown, must be supplied or replaced by an ascending current from the depths of the earth below. In a drouth, the current and circulation of water in and through the earth is diametrically opposite to that which is carried on in a wet season. The current is all the time up, up, up—like the tallow of a lighted candle, to supply the waste and continue the flame. You have observed this a thousand times, perhaps, without one single profitable reflection. With the ascending current of water, or moisture, also ascends the mineral substances held in solution, for this express purpose, in the "deep, dark depths of the earth," and without which vegetation cannot grow. As these waters from below are brought to the surface they are evaporated, leaving their salts or mineral substances in the surface soil for the food and nourishment of plants. Hence it is that we always have a very abundant harvest after a long continued drouth—as it is with us this year. Every one must have observed how light and beautiful the lands broke up with the plow last spring, for this identical reason, that the soil had been enriched from the "treasure house of nature." These enriching properties, or mineral solutions, are scientifically denominated "the phosphates and sulphates of lime," "carbonate and silicate of potash, or soda." These learned definitions need not puzzle or perplex you, they mean in plain English, the life blood, the bread and meat of the vegetable kingdom. These can never be sufficiently brought to the surface without an occasional drouth.

If these suggestions shall tend to silence the murmurings of the thoughtless in after times, my reward for this "work and labor of love" will be ample—premium or no premium. Moreover, the man who farms it right can "kill two birds with one stone." He may have his soils improved by a drouth and reap an abundant harvest at the same time. A word to the wise is sufficient. Instead, therefore, of wearing out lands they may and ought to become more fertile by use, and would, too, by a proper rotation, proper cultivation, and a proper dressing. Clover is the greatest fertilizing crop, mainly for its long, carrot-like, or tap root, which penetrates deeply into the soil, pulverizing it to a great depth. It is indeed "nature's own subsoil plow." When the land is again broken up the decayed roots greatly

enrich it, and the parts which are cut off by the plow-share perish in their low abode, enriching as well as pulverizing it to a great depth. You cannot well make too free a use of clover; and for a similar reason, locusts, which we so much dread, by their deep and numerous perforations into the earth, bless the husbandman fourteen years and tax him only one. This is an original thought, too long perhaps overlooked.

I will not say much about the best time and manner of planting and tending the various crops—that should be governed by the soil, the season, and all other circumstances of which the farmer must be sole judge. Judgment must also be exercised in the amount of seed to the acre, or to the hill, and the distances between. More err by planting too close together and too much to the hill, than upon the other extreme. Corn four feet apart, with three stalks in the hill, is the best standard. To secure which put in a few extra grains and thin out, leaving the choice plants.

"One for the blackbird,
One for the crow,
One for the cut-worm,
And three for to grow."

Seed corn should be secured from the first ripe and most productive stalks, and plucked early from the field. Then, at shelling time, select again the largest and fullest grains, from the least and longest cob. Don't forget it, farmers, it will pay well try it who may. Corn should not be cut up too soon, it will mould and rot at a great loss—more when cut too soon than too late. Dry blades will very much improve in the shock. Ten or twelve hills square is about the right amount to each shock. Large shocks stand better than little ones, if rightly put up. Take four hills and lap together crosswise, for a kind of stand or supporter; then put three good hills in each cavity, and bind with a little stalk to keep the center firm—it is soon done—then cut and stand, as evenly all around as possible; then bind again, with rye straw if you have it. The stalks of broom corn are much better than common corn. Sweet potato vines a little wilted do admirably; but I believe the cheapest and best binding, all things considered, is common broom twine. Cut as long as you want, make a little loop-hole in one end, hang this on a sharp stick thrust in the shock, pass round the shock and thrust the end of the line through the loop, and you have a tremendous purchase, "bring it up home," take a half hitch bow-knot, and all is safe. It can be done in less than half the time it will require to read my "plan of the operation." If the shocks do not stand out too long the same bands will last several years, and one fourth of a cent will be the full cost of a single band; and you can save that easy, every year, in time, aside from the pleasure, which is no small item. Try it, and then report. A five cent ball will be sufficient to bind twenty-five or thirty shocks. Hurry and necessity forced me into the experiment, and I am highly pleased with it.

Potatoes do best on new ground. They should not be planted too deep nor hilled too high. The yield is greater from the drill, but not as easily and readily tended. The problem is not yet fairly and satisfactorily solved, whether little or big, whole or cut potatoes are best for seed. All sometimes produce well and sometimes fail. If cut, they should be cut a week or two at least before planting, and spread out to dry, and if so dry that they will perfectly rattle, no matter, the

starch makes a coating for the wound, and when put into the earth absorption immediately takes place and vegetation begins. But when fresh and bleeding the earth for a season absorbs from them, which makes a wrong and bad beginning, and not unfrequently makes a bad ending. For the same reason graftsmen prefer a withered graft to one freshly cut, and they are much more likely to live and do well. The philosophy of it is, in both cases, the draft immediately commences and commences right.

Pumpkins do better among potatoes than corn. Plant every fifth row and leave not more than one or two plants in the hill. Your potato crop will be matured before the vines much interfere, and thus you may secure a fine crop of each on the same ground, and with the same amount of labor. The best economisers are the *best* managers in all the departments of life.

"The garden" must not be passed by unnoticed. It is evidence of taste and refinement to see a neat and pretty garden, tastefully arranged and duly ornamented. Even a rose tree under the window, or a honeysuckle over the door of the humblest cottage or cabin is a good omen, inviting the lone and weary traveler to generous hospitality and sweet repose. The hand that cultivates flowers is seldom, if ever, closed against the supplications of the poor or the wants of the stranger. Flowers have been called "the alphabet of angels," wherewith they publish abroad, from hill tops and plains, mysterious truths of love and mercy, and "good will to men." It is a delicate pleasure to cultivate, to inhale their rich odors, to behold and to enjoy them. If, however, all cannot treat themselves to a beautiful flower garden, all *can* and all *should*, without fail, treat themselves and their families to a neat and pretty vegetable garden. Nothing upon the premises will pay better. A half acre lot which I thus cultivate has supplied, and much more than supplied, my family with almost every vegetable in the garden line, since early spring time, and I shall harvest at least a bushel or two of sweet and not less than twenty of common potatoes, seven or eight bushels of onions, five or six of rutabaga, as many of carrots and parsnips, and not less than ten of beets, two hundred heads of cabbage, a few turnips, one hundred good winter squashes of various kinds, as many pumpkins, and at least one bushel of early ripe corn, and as much or more of first rate field or dry beans, for winter use. All sold—green corn, lettuce, radishes, peas, beans, cucumbers, water-melons, musk-melons, raspberries, gooseberries, currants, &c., worth at least $100.

To be profitable, a garden should be well arranged, well occupied, and properly attended to. Alas for us, what a spectacle to behold—many of them are so much so that one might suppose that Webster was sadly behind the times. What! Garden—"A rich, well cultivated spot, appropriated to herbs, plants, fruits, and flowers?" Pshaw! Rather—"A lot inclosed and made rich for the spontaneous and luxuriant growth of weeds."

Farmers, these things ought not to be. Come and see *my* garden—for an open vegetable garden, I challenge comparison, for cleanliness at least. I perform all the labor with my own hands; and I feel quite as dignified in my *garden* as in my *school room*, upon the *bench*, or even in the *pulpit*—everything in its proper place. The secret is, I, yes even *I*, am proud of my garden, and most heartily *love to work* in it; and my reward is ample. Friends, come up to the rescue. Don't leave all to your wives and daughters, but roll up your sleeves and walk right into

it with a hearty good will. Do the hard work and the planning yourselves, and thus encourage your wives and your children. Altogether, the work will go "cheerily on," and be "done up brown," and no mistake.

Making up beds in the garden is to me an obsolete idea. Keep the whole surface smooth and level as possible; plant everything in drills, by a line, from one foot to eighteen inches apart; plow and spade deep and manure well. Thus you secure to your plants the full benefit of every shower, instead of having it pass off into the ditches around your beds. Try it, every body. Dig open a hill as though you were going to plant potatoes, set your poles into them, then fill up with fine loose earth, and plant your pole beans around the pole; thin out to two or, at most, three good plants, both for green and dry beans. One hundred hills of such winter beans as I cultivate will ordinarily supply a common family. Pluck the pods and shell by hand—a pretty evening exercise—and then they are so neat and clean, and always ready for use. Poles should be cut in February, six, seven, and eight feet long, the limbs towards the top cut seven inches from the body of the pole, and then your vines will not fall. Remove your poles early in the fall, keep them dry during the winter, and they will last many years. Don't forget or neglect it—don't! Keep a few sand or ash heaps about your hen-house, for your fowls to wallow or dust themselves in. Always after a rain, and at the right time, stir them up afresh with the hoe, and your fowls will not trouble you by wallowing in your garden. I repeat it—they will not, *hardly ever*. Nothing in the agricultural line pays better than *fowls*, if properly provided for and attended to.

The statistics of the country show that not less than fifteen to twenty millions of dollars are, in the United States alone, vested in *poultry*, and a hint or two about their management may not be out of place here.

To be profitable, hens should lay their eggs plentifully in the winter season, when eggs are scarce and prices high; and they are sure to do so if you give them anything like a fair chance. Their house should be warm and dry, and kept clean, well supplied with sandy gravel and lime, and an abundance of strong lime water; they drink it readily and lay many fold better for it. The philosophy is simple and need not be explained here. They also require some kind of meat occasionally. Oats, buckwheat, and other grains, boiled potatoes, mashed up while hot and mixed with meal or bran; bones or oyster shells pounded up fine, and given them, are all excellent, and pay well. Their nests should be convenient and rather secreted. With a right kind of a nest, it is said that one hen will hatch twenty-three chickens at a time, as readily as a less number. Place fourteen eggs in the bottom of the nest and nine upon them, which will readily fit, as you will see by experiment. Who will try it and report? We shall see, perhaps. In this age of "chicken excitement" we leave the question open as to the best and most profitable kind of fowls to be kept. A little soft soap mixed in dough is a sure and simple remedy for the gapes it is said.

Stock should be carefully selected and carefully provided for, to be profitable. Keep no more than you can keep well. One good cow, fat and sleek, that you feel proud of and everbody admires, is more easily kept and much more profitable than two or three walking skeletons, which require all you give them to keep soul and body together, without any return by way of "milk and butter." From one cow I have supplied my family richly with milk and cream, and then made two hundred

and fifty pounds of butter in one short year, and fattened a good five weeks old veal calf in the bargain.

We keep altogether too much stock for our means, as a general thing, and no mistake. And to see how some fatten their pork, in cold filthy pens or yards, is most horrible. Hogs should be kept warm and clean to fatten well. Before you put them up select the corner you wish them to occupy as a retreat, place there a shovel full or two of fresh hog manure, wet the corner well with a bucket of water, and almost as certain as life your hogs will take to that corner and keep it. Years of experience has confirmed me in this. A little watching and correcting for a day or two may sometimes be necessary, and that in any case is all. Call on me and I will show you at any time the full and clear illustration—the result of observation purely.

I might, and perhaps should, hold up here, or have held up before, but believing the facts I here record both of interest and importance to the farmers of this county and the country generally, and willing to give something like an equivalent for the "premium," and anxious to enforce upon *all*, that *observation* well directed will almost supply the place of scientific research and investigation. I thus dwell a moment.

I have said and repeat it that the calling and the opportunities of our pioneer farmers measurably forbid their becoming learned chemists or philosophers, according to the books; but with a little of the right kind of reading and a great deal of the right kind of thinking, they may avail themselves of much of their united benefits. I could borrow ten and carry one in substracting, could readily perform operations in the square and cube roots, long before I saw any propriety or beauty in these operations.

Lord Brougham once said that mathematical truths could be arrived at by thought alone. Would it be a hard saying—saying too much, to aver that our farmers generally are not only deficient in book learning, but sadly deficient in "observation learning;" and simple and careful *observation* is the point I am driving at—the point I would enforce.

How many of our farmers and young men, if suddenly called to testify under oath, could, without much hesitancy or risk, say whether cattle and sheep have frontal upper teeth or not? Yet they have been familiar with cattle and sheep all their days, and this fact could have been as readily ascertained from *observation* as from the books. How few men, or women either, are aware that cold water will dissolve more salt or lime, or retain more alkali, than warm water, as shown in my reference below; and still how few know that when water cools below a certain degree of heat, it swells and enlarges its bulk until it is formed into ice, which always floats about one-third of its bulk out of the water; and, on the other hand, "a rule that works both ways," when it becomes heated above a certain point, 40° I think, it swells until it becomes steam of fearful power, occupying nearly two thousand times its original space. Yet all these are well attested facts, and, to minds at all *observant*, they are known to be true.

Now, the science of successful farming, in some form, embraces nearly all of nature's wise and mysterious laws, and well directed observation will soon enable the farmer, unless he be some old fogy, to recognize these beautiful laws in their diversified and profitable applications.

If our farmers, generally, would a little more liberally patronize the press, the periodicals of the county and the country, and spend a few of their dimes for standard works on geology, chemistry, and natural philosophy, and devote their spare hours of a single winter season to their perusal, they would even in the coming summer be able to *observe* and profitably comprehend a thousand little interesting incidents connected with their agricultural pursuits, which otherwise would have passed unnoticed and unimproved.

It will readily be observed that my quotations in this essay have been copious and free, and I have altogether selected, or nearly so, from the periodicals of the day, my own *observation*, and reading, and experience, having tested their truthfulness. Many suggestions, however, are purely and strictly original, as much and more, perhaps, as is common in essays of this kind.

Finally, we must elevate the standard and calling of agricultural pursuits by a more liberal reward to the labors of the husbandman. And, ladies, in this as in all other great and good enterprises, we turn to you for hope and encouragement.

> "What you approve and smile upon
> Just like a charm succeeds."

In common parlance, young ladies are too apt to "set their caps" for professional gentlemen. Professional gentlemen are very useful and honorable members of society, and, in common, deserve pretty and accomplished ladies, but not more so than the farmer and the mechanic. They are at the very foundation of all the wealth of the country, and, rightly understood, no calling is more honorable. The immortal Cincinnatus was taken from the plow to steer the ship of state. Elijah, too, passed by and threw his prophetic mantle over Elisha while at the plow-handle. The first Adam was a gardener and a farmer, and the second a carpenter. Young ladies often go from home when they set themselves up above the young, hard-fisted, sun-burnt farmer. What life has greater variety and more charms to either man or woman than the farmer's. The following chaste and pretty gem is just to my hand, and I will here introduce it for your pleasure and benefit:

A FARMER'S WIFE I'LL BE.

I'm a wild and laughing girl, just turned of sweet sixteen,
  As full of mischief and of fun as ever you have seen;
And when I am a woman grown, no city beaux for me—
  If ever I marry in my life, a farmer's wife I'll be.

I dearly love a country life, I love the joyous breeze,
  I love to hear the singing birds among the lofty trees:
The lowing herds and bleating flocks make music sweet for me—
  If ever I marry in my life, a farmer's wife I'll be.

I love to feed the chickens, and I love to milk the cow,
  I love to hear the farmers's boy whistling at his plow;
And fields of corn and waving grain are pleasant sights to me—
  If ever I marry in my life, a farmer's wife I'll be.

I love to see the orchards where the golden apples grow;
  I love to walk in meadows where the brightest streamlets flow;
And flowery banks and shady woods have many charms for me—
  If ever I marry in my life, a farmer's wife I'll be.

Let other girls who love it best enjoy the gloomy town,
  Mid dusty walls and dusty streets, to ramble up and down;
But flowery fields, and shady woods, and sunny skies for me—
  If ever I marry in my life, a farmer's wife I'll be.

These sentiments, though somewhat romantic, are certainly chaste and beautiful, expressive, impressive, and highly worthy any young lady—worthy any occasion, and peculiarly so on this; and hence I enrich my manuscript with them and pass to a conclusion.

As a general thing, we undertake to cultivate too much entirely, and then don't half do it. Better, decidedly better, to add to your fields in *depth* than length or width. Less seed less cultivation would be required, and at harvest time you may reach forth your hands and gather in something near a double crop. Our farms, from whence we are to derive all the permanent sources of wealth and comfort, are becoming worn out, or exhausted by excessive depletion, or bleeding, as phlebotomist would say, by always taking off and seldom putting on.

In governmental and banking parlance, this great "fiscal agent," the soil, we cultivate under a continued *run* upon her resources, is, in many places and sections of the country, beginning to *protest the drafts of agriculture*—fearfully curtailing her discounts to husbandry—not because of utter insolvency, but solely because its account of deposits is already enormously and overwhelmingly overdrawn, leaving the balance sheet, almost to an unlimited amount, in favor of the "parent institution." Such imperfect and ill-directed husbandry is alike impolitic and unjust, to ourselves and to those who are coming after us in "the grand drama of human life."

Have any of us sufficiently reflected that we only occupy in *trust*—that time and posterity will oust us and take possession, by and by? By all that is sacred on earth or holy in heaven, let us prove ourselves worthy our trust, and transmit to them not only our glorious and free government, but our estates, pure and unimpaired. I repeat—for them and their appropriate uses and comforts, these broad fields, and fertile vales, and flowery meads, are by us not owned *strictly*, but held "in trust." And as a lawyer or ermined judge would say, we should not impoverish, nor make desolate, nor commit waste upon the premises while in the use of our life estate, against the claim and to the prejudice of those to whom the reversionary interests justly belongs. We are morally bound by every principle of honor, pride, and justice, by implied contract and the common law principle, to surrender the premises in quite as good condition as when they came into our hands from ancestors or our government. And posterity, as infant parties, *now*, by their next friend, "agricultural science," do accordingly present their petition in chancery, to the justice and judgment of an enlightened community, praying for a *decree* of perpetual injunction against their ancestry, to prevent further waste and injury to their reversionary interests. And as a judge, we must say, viewed in any and every possible relation of right and good conscience, we must and do find that the equity of the case is clearly with the petitioners.

That this improvidence and waste of the present, and this gross injustice to future generations, may be clearly seen and scrupulously avoided, is one of the main objects of this essay—one of the principal aims of agricultural science—of our County and State Fairs. Practical science, in all the departments and relations of life, is in very deed "the common-place book" of nature. Her closet is never closed—her laboratory is everywhere open and free, and all should be admonished by her counsels.

"The rules and laws which she's discovered *not* devised,
Are Nature still—but Nature methodized."

Geology teaches that the *debris* (debree), or fragments of rocks, dissolved in process of time by the action of the sun and atmosphere, by freezing and thawing, &c., really constitutes the soil we cultivate—that earth's deep convulsions in "days lang syne" have mixed these soils differently in different localities, and science, with her magic wand, teaches how to correct and improve them. To enable our farmers to do this successfully, we repeat, does not require of all the tedious exertion of critical investigation and research, as practiced by the logician, the mathematician, the chemist, and the philosopher; but it does imperatively require of all well directed observation and care—the faculty to see and apprehend *truths* as they really exist and manifest themselves, and wisdom and skill rightly to apply them to our various callings in life—and *this*, and nothing *more*, and nothing *less*, constitutes true agricultural science.

The manifest design of our wise and munificent Creator, in adorning and beautifying the earth with all its rich and diversified scenery and grandeur—with blushing flowers and sweet odors—cannot be mistaken nor unappreciated by nature's studious pupil. Had it not been the grand and manifest design of the Almighty that these multiplied tokens of His love, providence, and care, should be studied and analyzed by his children, why are they thus lavishly strewn all along the pathway of life, as if to challenge our investigation, our admiration, our deepest gratitude, our heartfelt pæan of sounding praise? Is it not, then, manifestly the duty, the imperative duty of all, to heed these tokens and emblems of His paternal providence and care, not only for the soul-ennobling truths which they everywhere teach and illustrate, but for the pure, sweet, intellectual pleasures which they impart? They not only show forth the praises of Him, at whose bidding they sprang up around us, and by whose care they have been preserved and perpetuated through all the changing vicissitudes of time and season, but they also harmonize and tranquilize all the turbulent and discordant passions and feelings incident to erring humanity.

Who! O who ever resorted to the teachings of nature, who turned away to behold the full beauties of agricultural science in the hour of mental despondency and distress—of blighted hopes, and dissappointed expectations—that has not been more than a thousand times compensated and cheered on his way? The cup of thought has "many a time, and oft" been made to overflow with a foretaste of the unfading joys of paradise. From nature's pure and overflowing fountain, poets, and philanthropists, and philosophers have drank with unsatiated thirst, its gushing sweetness, to drink yet again, and to drink deeper and deeper still. Here dwells no deadly poison—no discordant passion—here lurks no beguiling foe—and here have turmoil and war, and strife and confusion, ceased at nature's tranquil breathings. Surely then it becomes us, and it becomes us *all*, men, women and children, little boys and girls not excepted, to study this ever open, and very beautiful volume, whose instruction yields such pure, profitable, and heart-felt pleasures on earth, and opens to the enraptured vision, the vista to still higher and holier, and sweeter joys—when earth, this beautiful green earth, shall have faded and passed away forever.

"The wise
Read nature like the manuscript of heaven,
And call the flowers its poetry.
And on her brilliant page,
Of truthful loveliness and beauty, they learn,
The language of "that better world."

ADDENDA.

REFERENCE (*a*).—I have accumulated a small library of about one hundred volumes, which I regard only as a small part of the savings of "rum and tobacco," and to which I am mostly indebted for the honors I have at times had conferred upon me by my friends and fellow citizens. And my experience demonstrates that the man of books becomes quite as anxious to get a leisure moment to visit his library, to perfect an investigation, conclude a chapter, or to introduce himself to a new work, as are the dissolute, the idle and the profane, to meet their comrades at the haunts of vice and dissipation. This wastes time and money, reputation, morals and usefulness. That secures, fosters, preserves and improves all. I have spent less time and money at places of common resort, perhaps, than any other man of my age, and it has both *saved* and *made me*.

REFERENCE (*b*).—As agricultural pursuits cannot be so successfully prosecuted without the aid and co-operation of the ladies, I here offer a suggestion for their particular benefit. Many ladies, in order to obtain "strong lye," put themselves to the trouble of procuring boiling water—the very thing to defeat it. Science and observation both demonstrate that hot water cannot dissolve, or retain as much alkali or lime, as cold water. You have no doubt observed, that your tea kettle gets all coated over on the inside with lime. Now if you kept it full of the very same kind of water for ages, with an ice cake in it, not one particle of lime would appear. If you want strong lye, ladies, use the coldest water you can get—it will save you much time and trouble, and if it does not work to a perfect charm, present your "bill of damages," and I will honor your draft. But tea and coffee are quite another thing, and for as simple reasons. Don't presume upon tea and coffee then. If these hints are at all serviceable to you, I shall be happy to have "cast in my mite" to lessen your drudgery and toil.

REFERENCE (*c*).—It is said to be true, that nearly ice water can be obtained in the hottest day, and the hotter the better, by this simple process. Fill a jar with water, covered all over on the outside, except at its mouth, with "cotton batting," the thicker the better, soaking wet, and set in the open sun, and the evaporation from without will carry the coloric or heat from within. And here is a forcible illustration which all must have experienced. A man caught out in a shower in the hottest weather, will become quite chilly as the sun comes out and dries his clothes upon him. Evaporation is a wonderful conductor of heat. Farmers, mechanics, every body try it next summer, and if it works as represented, when you quaff the cooling simple beverage, just drink one health to A. J. Cotton, in "pure sparkling water." Will ye?

REFERENCE (*d*).—Most persons approaching or passing an offensive odor, clap their hand to their mouth and keep all close in that direction, when the mouth can no more smell than the hand or foot. The olfactory nerve, or organ of smell, is the nose, and no where else but there; close your nose with your thumb and finger, and breathe through your open mouth, and you may pass the most horrible stench with perfect impunity. If all reports are true, "the man in the moon" so understands it, and governs himself accordingly. Try it.

REFERENCE (*e*).—How instructive is the dew. 1st, small efforts continued, perform wonders, and accomplish them perhaps, in due time. 2d, that gentleness will

effect what "storms and tempests" cannot do. The beautiful and sparkling globes of water standing upon the veriest point of the blades of grass, a beautiful sight to behold, glistening in the morning sun beams, is placed there by a gentle operation. Do bawling, scolding, cuffing parents, have sweet and dutiful, and pleasant children? Was such a thing ever known? Echo with its wanted impertinence answers back. Was it ever? Did you ever know a teamster who is eternally in ill humor, bawling out to the top of his voice, spending a small fortune in whips and snappers, which he uses without mercy or stent, ever have a fat and sleek, gentle and good team, either of horses or oxen? Does the termagant milk maid have kind and gentle cows? Does the teacher of angry words, and cuffs and kicks, have the pleasant and orderly school? It is an old maxim that "like begets like"—that a gentle hand can lead, even the elephant by a hair. "Let your moderation be known to all men," is a divine injunction, full of wisdom, and full of mercy. If in "fly time" your cows switch their tails in your face, or occasionally thrust their foot into the bucket, don't make a great outcry and fuss about it—take it calmly and patiently—what else could you expect from "poor brindle" when the flies are goading her nearly to death—poor creature. No biped, even with the light and aid of reason, can stand "stock still" with even a gnat or musquito teazing them. How then should a quadrupid be expected to, when covered all over as it were with gnats, musquitos, and big horse-flies? I milk a good deal myself, and do in the premises as I preach to you. I can approach my cows and milk them any where, in the woods, pasture, meadow or yard. I wish all milkers could see how at a gentle word my cows will "stand about," and put themselves in a proper position to be milked. Would it not be a good idea to give a premium for the gentlest and best trained milch cow? Most cows are spoiled in the first milkings. Heifers are often wild and timid—their teats are tender, and often hurt badly. Bawl out at them at the very top of your voice, kick and bang them, and you spoil yourselves and them at the same time, and make hard unpleasant work for both, in after years. About three months ago a very wild, yet beautiful heifer of mine came to her milching. I could no way approach her—she would hook, kick and jump, like the furies. In spite of all my care she gave me several severe kicks, and once hooked me in my side, or rather perhaps struck me—must have fractured a rib, for I suffered with it severely for nearly a month, yet I kept perfectly cool, gave her neither a kick or a sharp word—gently as possible I threw a noose over her horns, and then we took a perfect "set to," all in great kindness on my part of course; when a little accustomed to the rope I made it fast to a post, and then, even when her calf was sucking, I could not touch her without a perfect "rare and pitch," making both the calf and myself "stand about." And I saw not the least yielding for more than a month. My good lady, who is hard to beat with cows, said it was no use, and several times advised me to give it up and beef her. I saw she was a beautiful milcher, and was determined to save her if possible, by "letting patience have its perfect work." I never suffered myself to become the least excited, gave her neither a harsh word nor a blow, and after some four or five weeks she began to "gin in," came rapidly to, and now, in less than three months time, I can sit down and milk her any where in the yard, and on either side, as readily as any cow I have. And I know that *now* I have three of the gentlest milchers in the county or State. Unless I am greatly deceived in the outcome, my wild heifer will

make one of the finest and best cows "on foot." What are a few months of toil and vexation, to years of profit and pleasantness. How many good cows have been spoiled, and early put into the barrel, for the want of a little judgment and patience. No stranger would begin to give me my price for my little "pink." She will now readily approach me, and follow me "like a pet lamb." Farmers don't make your timid wives and daughters break your wild heifers—you may as well be "hooked and kicked" as they—seldom however, with moderation, judgment and care, will either get hurt. I dwell because this is a strong case and the victory complete. Who will profit by it. We shall see, perhaps.

ADDRESS

Delivered before the Agricultural Society of Hamilton county, September, 1854.

BY DE WITT C. CHIPMAN, ESQ.

The present century manifests a proclivity to inaugurate a *new era*. An *era* which theoretically repudiates the sword and the bayonet, and lavishes its smiles upon the simpler and more unostentatious, but no less honorable and far more profitable avocations of peace, industry, science and improvement. Honor, fame, ambition, renown, these have been sung in poetry, chronicled in history, and transmitted to remotest generations.

All ages, nations and climes cherish with grateful memories, the names and deeds of slayers of men, while they practically ignore and consign to oblivion the preservers, the feeders of nations, whose strong arms and iron muscles fill the coffers of the world.

We see scattered far and wide, among the nations that be, or those that were, the memorials of their greatness. The monumental pillars reared on high as storied urns, the vestiges of departed violence, though without tongues speak a common vernacular The broken statue, crumbling temple, mouldering mausoleum, collossal pyramids, and mysterious tumuli, proclaim their immortality. The Crystal Palaces of London and New York are the solitary representatives and embodiments of all which countless centuries have erected to the honor of labor, science and improvement. In my judgment the order of nature has been reversed.

Labor, dignified and rendered illustrious by the toils of God when the world was created, seems to have fallen into disrepute, and violence which is interdicted in the decalogue has taken its place. The one nourished as an exotic of rare and inestimable value, the other neglected and trampled under foot as a noxious and poisonous plant.

Assembled here to unite our experience for a common good, for improving all the substantial, ornamental, scientific, and artistic interests of our generation, a brief

review of the past, placed in *juxta position* with the present, will disclose whether we are advancing or retrograding. For one I am reasonably satisfied that before the fall of man, every thing was far superior and more perfect than now. That art and science then flourished in primitive and unsurpassed perfection, in harmony with the untainted virtues, and unclouded intellect of Adam, our common progenitor.

He gave names to all cattle, and to the fowl of the air, and to every beast of the field, and this was done from the intimate knowledge of the complex nature and property of each creature. Here is developed the wonderful perfection of his knowledge. It is undeniable that the names of animals always express some *prominent feature*, some *essential characteristic* of the creature to which they belong. Had he not possessed some intuitive knowledge of the grand and distinguishing properties of these animals he never could have given them such appropriate names. This one circumstance is strong proof of the original perfection of man while in a state of innocence, nor need we wonder at the account. Adam was the work of an infinitely wise and perfect being, and the effect *must resemble* the cause. Then Adam and Eve in the full and glorious possession of physical and mental faculties, vigorous and clear, unwarped by prejudice, unclouded by ignorance, and undimmed by disease, saw the horse with flowing mane, distended nostrils, breathing untainted air, proudly dash across the rolling green, the patient ox, the lowing kine and all the animals *fare natura* and *domita natura* mingling in heterogeneous perfection. There were fountains of crystal purity and sweetness, birds of glorious plumage and harmonious song, flowers of rarest hue and sweetest fragrance—all in full fruition—in full perfection, an ever blooming paradise, where luscious grapes, apples, peaches and plumbs required no horticultural skill; where potatoes, corn and all cereal grains grew spontaneously, without the culturing hand of laborious agriculture. While enjoying these sights in all their primitive perfection, the right of absolute dominion, or *jura rerum*, was conferred on man, by the Creator, when he gave him "dominion over all the earth, and over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth." But by the sin of the *fall*, all except the right of eminent domain, of *jura rerum*, and *jura personarum* was swept away from the grasp of man. The intelligence of Adam obscured by his mortality, disease and sin, is behind a cloud of ignorance and vice which centuries of laborious science has not fully re-lumed.

The earth produces thorns and thistles, and the curse. "In the sweat of thy face shalt thou eat breed till thou returnest unto the ground," rests with ponderous and prophetic truth upon all the posterity of Adam. From that eventful fall we may date the slow improvement of mankind. Naked, defenceless, and rude, from among the weakest objects of physical development, by the proud achievement of his intellect man has ceased to be the acknowledged "*lord of creation.*"

He is clothed in the habiliments of comfort and plenty. He dwells in a cabin, cottage or palace. He conquers the huge leviathan in his native element, and rides over the ocean in a floating home. He is never lost in the pathless wild, on the fathomless sea, or amid the solitudes of eternal mountains, for his magnetic needle points unerring to the pole. His balloon mounts higher than the eagle in his flight, and his iron car outstrips the fleet gazelle. He marks the course of planets, calculates their speed, density, distance and revolutions, and with his

telescope looks into the hidden mysteries of the unknown. He chains the lightning, holds converse with it around the globe, and with his printing press scatters knowledge like the dews of morning far and wide. His language has advanced to a science, his rudeness to refinement. Proudly he has advanced up the long aclivity of civilization and refinement, until his pale brow and God-like image is radient with the celestial light of eternal truth and philosophy.

The bee, the horse, the lion, and the lamb, and all other animals manifest no more intelligence now than they did in the Garden of Eden. Beastly instinct may not improve, but manly reason may. Doomed by the fall to eternal labor, slowly and with unwearied diligence, man re-climbs, with ingeneous and comprehensive mind the heights of science, and gradually approaches the grand development of his primitive wisdom.

Most of this audience are agriculturists engaged in the cultivation of the soil, recommended by the extraordinary advantages which are inseparable. Here in our feelings of pride we may well pause, and make the humiliating confession that this improvement is confined to the learned classes. It appears that mankind in the aggregate are as profoundly ignorant of the home and improvement of all grasses, cereals and animals, as they are of their own origin. How happy would that farmer be, who traversing his fields, could tell an inquisitive neighbor, or a curious son, from whence his wheat, barley, oats, corn, clover and cattle came. Yet he plows, sows and reaps, in profound ignorance. Even heathens professed to vaguely answer some of these questions. In India, the Bramah is reputed to have descended from heaven and planted the grain and nourished the grasses. Greece had the gift from Demeter, Egypt from Isis, Rome from Ceres, and Peru from the sun. As crude as these ideas are, how many farmers can better them? How many know that four thousand varieties of grasses carpet and adorn our earth? Of this vast number twenty varieties only are regularly cultivated, producing nutritious food in the torrid clime and in the frozen zone. Plants, grasses and grains, come from the orient, traveling in the pathway of light, from the rising to the setting sun. Coffee, sugar, tea, cotton, bananas and spices came from the east. The almond, apricot and peach, from Persia and Asia Minor. The orange from China. Wheat and barley recently from Europe, originally from India. The Spaniards brought wheat to America. It came with the sword. Three grains of wheat found in the rice brought from Spain, among the provisions for Cortes' army, and planted by a negro slave, was the origin of those endless crops which cover our continent from ocean to ocean. That humble slave deserves a better monument, and a more grateful memory, than our mightiest heroes, statesmen and sages. Rye, oats and rice from India. America only claims corn and potatoes as her indigeneous production. Peru, Mexico, and the West Indies, claim their paternity. Some historians deny us even this; surely, they are selfish. This mighty continent should have the merit at least of two productions.

It is estimated that there are 1,449,075 farms in cultivation. Allowing four persons on each farm, there would be 5,796,205 persons engaged in agriculture in the United States. This is evidently under the truth. What a sublime spectacle! Over five millions toiling at the plow, and yet, sad truth, ignorant of the origin, the species, the nature, and the properties of the plants they cultivate and the animals they rear. Like the blind mole, they toil in darkness and live in

ignorance. Could our farmers be liberally educated, such a flood of light would burst from our land, that while it astonished and bewildered the world, it would snap the chains of oppression and shiver the thrones of despotism. May we not hope that education will not be confined to learned classes and professions, but extend to every home, and to every mind.

About six acres of every one hundred of our broad domain is occupied or owned. In New England, twenty-six in one hundred acres is cultivated; in the South, sixteen, and in the West, five. The average value of lands in occupation, is, in New England, $20 an acre; in the Middle States, $28; in the Southern, $5; in the Southwest, $6; in the Northwest, $11, and in Texas, $1. From this we see that a large part of our vast domain is yet unsubdued; and when unborn millions in coming centuries bring it under cultivation, we can feed the world. Such is our sublime destiny. We contemplate it with no little self-gratulation, and our hope is that our toiling millions may be as enlightened and magnanimous as they are industrious and patriotic.

Most of my audience are agriculturists, engaged in the cultivation of the soil, recommended by the extraordinary advantages which are inseparable from the avocation, and following the obligation imposed on mankind by nature. Those wandering and nomadic nations and tribes, like the modern Tartars, Arabs, Indians, ancient Germans, Gauls, and Franks, who avoided agriculture and lived by rapine and plunder, violated a fundamental law of nature, and God's exterminating hand withered them from the face of the globe. He gave their fertile plains and valleys to the possession and inheritance of more civilized and enlightened nations. The Indian has been driven beyond the Mississippi—he rapidly disappears before the resounding axe and the bright plow-share. Last year we held our Fair within rifle shot of a fortification of that mysterious but now extinct nation, the mound builders. Each year the plowman turns up the soil and disturbs the ashes of buried nations.

It is a law of Divinity, a demonstration of history, that agricultural nations are the most enduring. I have already mentioned some which are no more, and others who are slowly and surely disappearing from the earth. Spain, of all modern, civilized nations, is the most fertile and the worst cultivated. Her history is a slow decline, following inevitable and irresistable laws of destruction.

As patriots and philanthropists, we should respect, encourage, and foster labor. We should never imitate the pernicious and contemptible example of those senseless fops and foolish churls, who look down upon the husbandman with contempt. The inhabitants of provincial towns and populous cities, servile artists, and lazy citizens, cast disdainful looks upon and despise a profession which feeds the human race. A profession rendered illustrious by the toils of Cincinnatus, Washington, Harrison, and Jackson. China is the best cultivated land in the world. "The population is so dense, and the culture of the soil so high, that, with the exception of a few water plants in skillfully flooded rice fields, all plants which originally grew wild there have been driven out. The whole land is now exclusively covered with grain raised by the hand of man, and the botanist finds, in the low lands at least, not a single plant which is not artificially cultivated." To honor and encourage agriculture, the Emperor, surrounded by his Mandarins and court followers, sparkling with gold and glittering with diamonds, turns over the fruitful soil,

and sows the generous grain, at the beginning of each year. No wonder, fostered by imperial hands, that China flourishes—that "Ceres waves her golden grain," and the "horn of plenty" scatters its rich abundance over a smiling land.

In August, 1850, I attended the New York Fair, on the Hudson river, near Albany. It was as fine a sight as I ever beheld of its kind. Thirty acres of ground had been inclosed, and from seventy-five to ninety thousand people were in attendance. Horses, cattle, hogs, sheep, goats, in a word, a vast number of domestic animals were there, which it would require days to examine. Mechanics' Hall was 225 feet long 75 wide. Connected with it was another 100 feet long, in each of which was a grand display of everything in the mechanical line. Manufacturers' Hall, 174 feet, was crowded with goods of domestic fabrication, and with the most superb specimens of needle-work. Dairy Hall was filled with mammoth cheeses and mounds of butter. If Indiana was a huge johny-cake it would butter it all. Those countless mugs, jars of pickles, honey, and preserves—it was a sight to charm an epicure. And there was Floral Hall, 140 feet long and 90 feet wide—bench upon bench—flowers above flowers—arising like a vast circular pyramid, on the top of which was a splendid dome, covered with evergreens, bespangled with flowers, and all surmounted by a marble statue of a perfect woman. This was right, and dictated with consummate taste. Woman, the May Queen, the brilliant and unrivalled flower of creation.

> "Ever graceful and elegant, with flowing locks and brilliant eyes,
> Eve flourished the fairest flower of Paradise."

> "The earth was sad—the garden was a wild,
> And man, the hermit, sighed, till woman smiled."

So her embodiment in the cold and sculptured marble held its high carnival over this gorgeous pyramid of flowers.

I saw in Genesee county, not at the Fair, one monster ox, weighing 3,500 pounds, and one hog of 850 pounds. I saw one South Down sheep, at the Fair, on whose back you could place three empty flour barrels; also, one yoke of oxen, each weighing 2,500 pounds. Such animals are monstrosities, and of course are not fair specimens of those on exhibition.

The Indians, Spartans, and Circassians have a custom of destroying all inferior, sickly, and mal formed children If we would destroy a large part of our domestic animals, and only propagate the blooded ones, their natural fecundity would fill our land with a stock much superior to the present. No nation has the same advantage, nor the strong inducement to improvement, that we have. Abroad, ponderous taxes and huge land monopolies, places broad acres in the hands of titled aristocrats and millionaires. The feudal system and oppressive tyrannies crushes the laborer to the dust, while with us our free institutions, and our allodial tenure, makes every industrious citizen a land holder. All we lack is improvement; and if we all act like a man at the New York Fair, who, viewing those huge cattle, only inquired "how much they'd bring," what will all the display and expenditure of our Fair amount to.

Now, if men visit fairs with ears open, and knowledge passes in at one and out at the other, they will never profit by them. Instead of inquiring their value, they should diligently inquire all about these animals, the age, the breed, how fed, on

what ground reared, whether stable fed, or run at large, and then, armed with information, practice the same at home.

He who takes a premium on corn or other grain, should be obliged to furnish a statistical table of the kind of seed, when planted, how often plowed or hoed, when gathered, the kind of soil, season, in fact everything which he knows of the matter. Then you would find less ground cultivated but better done. Deep plowing, careful culture, and less ground, would increase the surplus productions of the country.

Let the land not in cultivation rest under clover, change frequently, and our rich lands would increase, not decrease, in fertility. Don't plow like some farmers a few scattering furrows through the field, drop your corn and leave it to come up in regiment of weeds, sickly, spindling, and solitary stuff, far gone with the consumption. Never let grubs stand thicker than corn, cheat plentier than wheat, cockleburs than oats, burdocks and gymsum for fence, and briars for hedges

I see a visible improvement in stock. Twelve years ago your hogs looked like prairie racers; your horses, as if they had been sent for and could'nt come; your cattle, as if they had been somewhere and pulled through a not-hole while gone, and your chickens were coughing with the pip.

As I witnessed such a grand display on the Hudson, I frequently wished such an one might be displayed on White river. Here are cattle that might vie and compete with the best in New York; horses that are not slightly to be regarded, though not equal to the Black Hawk, Arabian, or gallant Andalusion; sheep of uncommon fineness, and hogs, if not as large as the New York monster, can grunt as loud; while the corn, potatoes, apples, peaches, tomatoes, onions, and the vegetable kingdom, are not surpassed in any land.

Blessed as we are by providence with a temperate climate, and rich and inexhaustable soil. speedy and easy transportation, there is nothing to prevent us from becoming one of the "garden spots" of creation. Knowledge is power, and we must be educated men before all of our latent energies find vigorous development. As soon as a boy can put his nose over a plow, and guide its course, he is not *eo instanti* a husbandman and scientific agriculturist. Knowledge has many an intricate labyrinth, many a deep well to sound, before its rich treasures open to the studious eye. Why should not the farmer be a scientific and learned man? The mechanic serves his weary apprenticeship; the statesman with comprehensive eye scans the political world; the minister contemplates the past and present, and looks with faith to the hidden mysteries of the unknown; the philosopher penetrates the rich arcanas of nature; the astronomer those of the heavenly bodies; the lawyer trims the midnight lamp over juridical precedents, municipal, natural, and national law; the physician seeks for health in the honored leaves which contain the healing arts of Esculapius; but the farmer alone is considered qualified for his high and illustrious calling without study and without improvement. He should, in my estimation, be a philosopher, geologist, chemist, and mathematician, intimately and practically familiar with all soils, their properties, the effect of different combinations, admixtures, gases, and fertilizing agencies.

It is by the intelligence and industry of its people that a nation prospers and grows rich. If that industry is guided by knowledge, the rise of the nation to power and renown is just in proportion to the perfection of that knowledge. The

truth of this is seen in the striking contrast which is found wherever ignorance or knowledge is enthroned. The truth of this is manifest by comparing the Scotchman and Hottentot, the European and Indian, the Englishman and Australian, the people of Indiana and those of Peru and Mexico. The State of Indiana has a deep interest in this matter. If she would spread the means of intelligence and self-culture over her entire surface, making them diffusive as the sunshine, causing them to penetrate into every hamlet and dwelling, and like the vernal sun quicken into life the seeds of usefulness and worth, wherever the prodigal hand of virtue may have scattered them. If she would call into existence an order of men who would establish a broader basis for her prosperity, and give a brighter luster to her name—men who would improve her arts and impart wisdom to her councils—men who, without being known beyond our county, without leaving any proud name behind them after death, still by their long life of industry fill up, as it were, drop by drop, the mighty stream of their country's prosperity—well assured that

There is a richer, grander state,
Than round the blood-stained heroes wait:
No Mars, with fierce, relentless hand,
Shall desolate their smiling land;
But Ceres waves her golden grain,
O'er verdant fields and cultured plain.
Be their's the deeds to heap the stores,
With grains that grace the granary floors.
The fields, with dewy freshness green,
Where blooded steeds and herds are seen,
While all the arts of peace appear,
And Plenty crowns the rolling year.

ADDRESS

Delivered before the Dearborn County Agricultural Society, September, 1855.

BY REV. B. WILLIAMS CHIDLAW.

In the allotments of a wise and benevolent Providence, the lines have fallen to us in pleasant places. Ours is a magnificent inheritance; for the earth is filled with the goodness of God, and given to the children of men.

Since your last convocation, celebrating the toils, triumphs, and progress of agriculture, another circle is marked on the dial plate of time. Then, the skies above us were as brass, and the earth beneath us as iron—a consuming drouth wasted the hopes of the husbandman. Now, we rejoice in the superabundance which everywhere prevails. Never has the earth afforded a more bountiful return to the sons of toil for their well directed labors. The earth has truly yielded her increase with unwanted liberality; for which a pure offering to the giver of all good should ascend from every heart, and every tongue. His eye, resting on the

bow of promise—His heart, in sympathy with human feebleness and dependence, secured this new memorial of divine goodness and faithfulness.

We are assembled, not to celebrate the success of a victorious army, with its banners bathed in blood, but the successes of human labor and skill—of agriculture, the mistress of arts—the highest and noblest avocation—worthy of primeval innocence, dignity, and purity.

Man was placed in the fair bowers of Eden, not to vegetate in passive luxuriance, but to dress and keep it. This was his business—his calling of God. This divine appointment to labor makes it binding, useful, and honorable. It was a work of darkness that degraded labor; it is the work of light to emancipate it from this degradation.

Practical farming is coeval with the history of man. One of the sons of Adam was a tiller of the ground, the other a keeper of sheep. Many of the laws of the Hebrew commonwealth have for their object the cultivation of the soil, and the regulation of flocks and herds. Elisha, the seer of Israel, was a plowman; and when the Sabeans robbed the affluent Idumean, his servants and oxen were engaged in the same pursuit. The Egyptians attained power, wealth, and distinction, by cultivating the soil. Classic Greece has been rendered immortal, not more by the scenes of Marathon, Thermopylæ, than by the peaceful pursuits of agriculture. Homer and Hesiod have immortalized, in glowing strains, the labors of the field. Cincinnatus was called from the plow to the dictatorship that saved Rome from anarchy and ruin.

The highest authority of history, sacred and profane, declares that agriculture is a noble and time honored avocation; that, under the auspices of religion, it produced and perfected the highest civilization. Its mission is to bless our race with peace and plenty, contributing to the amelioration and elevation of the human family, by agencies the most certain and effective.

The object of our gathering together, to interchange thoughts and sentiments—to exhibit in honorable competition the products of our soil, the fruits of our orchards, the choice of our flocks and herds, the handy-work of our artizans and mechanics, the skill and taste of our mothers, and wives, and sisters—is to stimulate and properly to direct the activities of agricultural life, securing to the profession a dignity of position that its usefulness and importance justly demands. As a subject appropriate to the occasion, I invite your attention to the

DUTIES AND RESPONSIBILITIES OF THE DEARBORN COUNTY FARMER.

And who is the Dearborn county farmer? He is a freeman, highly favored in the allotments of divine providence; owner of the land he tills; and by his industry and prudence soon to become the lord of the manor. His is a farm and not a plantation, located where the ægis of '87 has and will protect it from the withering blight of slavery—a genial climate, and exhuberant soil, and the advantages offered by numerous turnpikes, railroads, and the navigation of the great Ohio. His duties are many and his responsibilities mighty.

1. The land he cultivates has a strong claim upon his intelligent regard. Dearborn county, the oldest, and among the first of the ninety-one, composing this great commonwealth of Indiana, has 155,000 acres of land, of which 90,000 are

improved and divided into 1,700 farms and near 4,000 dwelling houses, valued at near $4,000,000, with a population already numbering 24,000, and rapidly increasing. Its capabilities of production are indicated in the statistics of the crop of 1850: 70,500 bushels wheat, 98,000 of rye and oats, 938,000 of corn, 5,500 of barley, and 14,000 tuns of hay. These facts show that the Dearborn county farmer cultivates a soil abundent in its productiveness, and of resources yet to be developed.

When this county was first settled, after subduing the forests, the worthy pioneer found in the inherent qualities of the virgin soil all the productive energies his heart could wish. He had little to do but to sow and reap—to plant and gather. The soil, however, is not inexhaustible in its productive powers. The land must be cared for, that its productiveness may be continued and augmented. This is the work of the intelligent and successful farmer. It was a grave question in former days, whether the stable or the manure should be removed; and, generally, the undisturbed manure, embracing the rotten half of the stable, held the position, and the horses a jubilee on the occasion of a deliverance, at least for a season, from the mire and the scratches. Short crops and luxuriant weeds, and clods hardened by age, tell the farmer that he must look into his soil, inquire into its ingredients and properties, trace the causes of its deterioration, and ascertain what remedies are needed and how to be applied. This knowledge, to the extent and accuracy desired, will not be his by intuition. He must study agricultural chemistry and analyze his soil. He must acquaint himself with the organic substance of plants, their peculiar habits, and modes of securing nourishment. He must understand what nutriment the crop takes from the soil, and the method of replacing that which is taken away. Reading, reflection, observation, and experiment, will soon acquaint him with these necessary facts. Farming on such principles will increase the productiveness of his land, while its strength is annually employed in cultivation, furnishing ample returns for all his outlay of means, of skill, and of labor.

John Randolph used to say to the Virginia planters, when exhausting their land in cultivating tobacco, "that they were barreling up their soil and sending it to Europe." The unnumbered acres of waste land, robbed of its fertility by ignorance and cupidity, now found in the Old Dominion, attest the truth so plainly uttered by the sage of Roanoake. The 400,000 barrels of whisky manufactured in Ohio and Indiana, in 1854, and no small proportion of it in this county, is the same barreling process, and is working out the same results with reference to our soil. The alluvial bottoms, subject to fertilization by inundation, may not suffer by the incessant drafts necessary to produce corn, but our second bottoms and hill lands do suffer, and suffer severely.

Sound morality and the true policy in agriculture, require that the continued production of corn, year after year, should be abandoned. Having pursued so long a system of robbing, our dealing with mother earth should, henceforth, be conducted on principles of moral honesty. Instead of take, take, take, let us give rest, clover, and manure, and give abundantly, and with sound discretion. Let our broad acres rest under the luxuriant covering of red clover, with a free application of muck and manure. In due time, when, by deep plowing, you rouse up the invigorated energies of the soil, its vital properties will be manifested, and

your kindness and toil amply remunerated. Honesty in the treatment of his land, is certainly the duty and the interest of the farmer. Good cultivation, on scientific principles, is our true policy. A few acres well tilled will yield a higher per cent. on the capital invested, and the labor performed. Thorough acquaintance with the properties of the soil, the employment of the best implements of husbandry in its complete pulverization, and a knowledge of the kind of grain it is adapted to produce, will secure an abundant crop. With such a system of culture, the husbandman takes pleasure in the works of his hands. Under its operation, he sees two blades of grass, where one, half starved. greeted him before; weeds and clods, the accompaniments of bad farming have disappeared, and a plenteous harvest rejoices his heart.

2. It is the duty of the farmer, when his soil yields such abundant returns, that its productions should not be disgraced and misapplied in furnishing scalawag cattle, long nosed hogs, furious in superabundant bristles, horses that have but the name of that noble animal, and sheep, whose wool is only fit to make cable ropes and sack cloth. Of late, much has been accomplished by importations of superior stock into our country, improving the breed of those animals which every farmer must possess. The exhibition of stock on these grounds, has evinced a decided improvement, and has shown that some farmers have done their duty, that their pastures and cereals have been fed to animals of real beauty, and intrinsic value. Why may not premium stock be found on every farm in Dearborn county? Let the owner do his duty, by investing his money in first rate stock; look after it with diligent care, and feed with a liberal hand, and such will be the fact. He will bring to market, realizing quick sales, and heavy profits, the sweetest pork, the fatest beef, the finest wool, and the best horses. The blessing of the consumer will rest upon him, and a consciousness of well doing will swell his heart. The best of food and clothing are thus afforded. The grain productions of his farm are not converted into a tide of liquid fire, rolling degradation, misery and death over the land; the woe of the inebriate, the curse of the widow and the orphan fall not upon his ear; as a partaker in their ruin and wretchedness, he is not implicated a guilty man.

3. The farmer in fulfilling his important functions, not only takes care of his farm and its productions, but he cherishes a high and sacred regard for his home. He loves his farm. In Great Britain, where a system of tenantry prevails, it is a notorious fact that the tenant has strong and strengthening attachments to the farm which he cultivates. Farms thus held, remain in the same families for ages. These tenants appear to possess and to manifest a higher attachment to their rented farms than is generally seen in this country among the owners of the soil. A high regard, a warm attachment to the soil, is a source. and a valuable agency in its improvement. Too many of our farms are for sale; few of us would refuse to sell out if a high price were offered. The successful, progressive farmer, must be identified by attachment and love to his homestead, the warm affections of his heart must entwine about his home, his fields, his orchards, his garden, his barns. The want of this paralyzes the spirit of real improvement, and makes him a mere laborer. He is restive, makes no improvement, plants no shrubbery, works not for to morrow; taste and comfort are no where seen, for he has not the ties that bind him to his home. The well known story of the Arab and his horse illustrates this

point. Starvation and death stood ghastly before him and his family; his favorite horse was all he owned; yet, dark prospects, nor glittering gold, could neither induce him to part with his favorite steed; he loved him too well to give him up. The favorite animal was valuable in the estimation of the generous Arab, and the transfer of ownership he could not endure. And what made the horse so fleet, so symetrical, so beautiful, so sagacious? The Arab had trained him for his own use, and never expected to part with him; this was the whole secret. A tract of land is bought for speculation—it is improved for speculation; the owner never identifies the making of a permanent, happy, neat and tasteful home, with his purchase and his improvements; and this accounts for the half finished, ill designed arrangements of the "place," instead of the comforts and conveniences of the farm.

It is the evident duty and interest of every freeholder, having an eligible location, and soil capable of profitable culture, once settled, to remain settled—to clear his land, to build his house and barn, to plant his orchard, and arrange his garden, and the appointments of his homestead, as he would his home for life. This fixedness of purpose would promote and give character to all his plans, expenditures and labors. A love of home is an ennobling and virtuous principle, and home, to be loved, must have attachments, such as the enterprise, the taste and intelligence of the occupant must throw around it, and in it. The farmer owes it to himself and family, to the wife of his bosom, and the lights of his dwelling, not so much to accumulate money, or add acre to acre, as to improve the home that God has given him. A model house, with its chaste architecture, its well arranged conveniences, furnished by the hand of taste and liberality, surrounded by the beautiful in art and nature, has a loveliness, a charm, a power that impresses all that dwell beneath its roof. An attractive home enchains the affections, refines the feelings, and improves the heart. What better investment can the hard working farmer, who manages his affairs with discretion, make with his surplus capital, than to improve and beautify his homestead? Will it pay? Yes, a hundred per cent. A look at his patent to a thousand acres on the wide plains of the west—or at his bonds and mortgages, affords no such pleasure as to behold his happy, lovely and cherished home. Prospective wealth may ruin his children, but the influence of such a home will be a reformatory and elevating agency, priceless in value, and irresistible in power. I plead not for luxury, display and efficiency, but for real comfort, rational enjoyment, genuine pleasure, which such a home, all other things being equal, is so certain to afford.

4. The enterprising and successful farmer lives not for himself, but for his God and his country. His relations to society involve the faithful discharge of many and important duties. The interests of the State, of popular education, of sound morals and true religion, have a pressing demand upon his liveliest sympathies and vigorous support. The farmers of the United Colonies constituted the great proportion of the heroic, self-sacrificing army of the revolution, that gained our glorious independence, and ours is now, the high and holy duty to preserve, in unsullied integrity, the blessings thus secured.

In the estimation of the immortal Washington, the prosperity and perpetuity of this government, rested on the intelligence, morality and religion of the people. The truth of his idea is now a historic fact. The South American Republics were established, but how short their duration. There, the masses were uneducated, and

denied the rights of conscience and the holy scriptures, and they failed to maintain the blessings of true freedom. The French republic glared with meteoric splendor, but soon her light went out, in the dark gloom of infidelity and irreligion. Our religious and civil freedom, founded on the rock, has remained unshaken for near four score years. The American Union, *strong*, and yet *strengthening*, stretching from the lakes to the gulf—from ocean to ocean, is the monument high in praise of sound morality, general education, and the pure principles of our common christianity. The farmer has much to do in promoting the cause of popular education. I feel a profound desire glowing in my soul, to press this subject earnestly upon the conscience and hearts of all that hear me. Without the vigorous, earnest and persevering help of the farmer, the commonwealth can never secure the education of the nine thousand youths of this county. Not much over the half of the youth of schoolable age in this county are reported as enrolled scholars the last year. The munificent appropriation of the 36th part of this county, by the General Government for educational purposes, and the early enactments of the State Legislature, has not, and will not do the work. The combined and well directed efforts of the friends of sound learning, must secure the desideratum of a general and thorough education. Shall we educate our youth, or meet the consequences of neglect? Which is best, taxation for education, or taxation for the prevention and punishment of crime? One or the other we must pay. Patriotism, humanity and religion, tell us "train up a child in the way he should go, and when he is old he will not depart from it." What has the farmer to do with education? What has the Miami to do with the Ohio? Elect men whose talents and sympathies are in the work of popular education, to enact your school laws. Men who will ask, not how can we vote so as to be re-elected and promoted in the party scale, but how can we open the school house door, and educate every child in the State. Educate the intellect of the heart—the child of earth, and heir of immortality—the American citizen, and the being whose destiny is linked like ours, to the weal and woe of that vast eternity which lies outstretched beyond. The intellectual and moral faculties, unfolded, cultivated and directed in the light of a divine text book, and by the skillful hand of the true educator, will secure genuine patriots—sons and daughters that will bless the world—and by the divine blessing accomplish the great and glorious mission of life.

Then, my friends, get your eye on the great subject of popular education. Build in your district a school house, such, that in location, construction and appurtenances will fill your hearts with laudable pride. Build it so that you can say to the stranger or visitor, *that is our school house.* Adopt the best text books, and secure the best teachers; then your educational machinery is in first rate working order. Let every farmer put his hand in his pocket and cry out, this glorious enterprise takes money, and here it is. My poor neighbor needs such a school for his children; and mine is the privilege to do my part in a system of education so democratic, so American, so just, and so effective. Such a system, that offers to every child the equal advantage of obtaining a good education, is practical and possible. The safety and permanency of our civil and social fabric, requires such a system of common schools. Educate the hand, the intellect, and the heart of the child, under the influence of true science and an open Bible, and you give him an outfit for the journey of life, and the comforts of earth, that golden treasures and

landed estates can never provide. Correct moral principles, well understood, and embedded deep in the affections of the heart, added to the high and noble aspirations of purpose, will be a rich, safe, and permanent inheritance for your children. At this day, when juvenile delinquency so abounds, and the temptations to seduce our youth into the paths of the destroyer, so multiplied and powerful, it is time, high time, for every good citizen to engage in the work of properly educating the rising generation. If your children receive the proper training of the intellect and the heart, the mind developed and stored with useful knowledge—the will subdued—the conscience enlightened—the affections pure, they will be prepared to meet the responsibilities of probation, and the momentous duties of active life. Such a generation will add dignity and strength to the State; instead of being fungous spots on the body politic, dead weights, worthless drones devouring its vitals, corrupt and corrupting, they will contribute to its prosperity, augment its industrial resources, and crown the commonwealth with honor and renown. Let the district school, "the peoples' college," be highly cherished in all its interests. Taxation in its support, is sound policy and money well expended; "an ounce of preventive is better than a pound of cure." Education is the grand preventive of crime, and the provider of virtue. Then let our purpose be to educate the masses in the school of true science, sound morals, and pure religion; then shall we serve our God, our country, and the generation soon to take our places in the grand arena of life will rise and call you blessed.

Permit me to add, that for our own sake, and for the sake of an earnest participation in the work of popular education, we must educate ourselves. We must perfect that which was commenced in the log cabin school house, under the pressing disadvantages of a new country. Let every farmer, and every farmer's wife, zealously progress in the work of self-education. Let every homestead—beautified with a well selected library—books that are books—witness our diligence in reading, in exploring the inviting fields of literature and science. What are called the learned professions, should not monopolize the reading, the hard study, and progressive improvement. The plow handle profession, the hard working profession, should read and study. Its responsibilities cannot be fully met, nor its duties faithfully discharged, without a high cultivation of the moral powers, and intellectual faculties. Without the possession of extensive knowledge, the farmer may successfully cultivate his fields, and manage his farm, but he looses intellectual pleasure, and fails to attain his legitimate position in society. The intelligent farmer may serve his country in the halls of legislation, and in the transaction of public business. The working profession needs representatives in our high places; and the welfare of the commonwealth demands that the educated, the honest, the enterprising Cincinnatus of the nineteenth century, should with a steady hand, help to keep the ship of State fair before the wind, safe and onward in her course.

5. Every farmer should be the patron and friend of sound morals, and public virtue. His heart and hand should move in perfect sympathy with every elevating and reformatory agency, designed to bless and improve our population. What avails broad acres of fertile land, without an intelligent, virtuous, and industrious population? What was the value of bottom lands in the plain of the Dead Sea, or of city lots in Sodom, and its suburbs? The degradation, the sensuality, the idleness

of the population, rendered real estate perfectly worthless. Let irreligion and immorality, indolence and effeminency gain the ascendency in our midst—remove the sanctions, motives and interests of revealed religion—let down the standard of public morals, and what would your land be worth? Yes, what would be our condition, and inevitable destiny. Crime and debauchery would paralize and absorb our industrial energies—the land would be filled with mourning, lamentation and woe—our fair inheritance would be utterly destroyed—the sun of freedom would set, amid the darkness of a hopeless, endless night.

But we hope, and are certain of better things. The supremacy of wholesome laws will be maintained—the door of the school house will be wide open, and from the altars of religion will go up a pure offering to the giver of all good, without whom nothing is strong, nothing is safe—in whose hands all is well. The permanency of our free institutions, our continued prosperity, the increase of wealth, refinement, intelligence and morality, depend upon the successful operation of the causes we have specified. A spontaneous wheat harvest we never expect. Water will never rise higher than the fountain. The agricultural population is the sheet-anchor of the republic—the patriot's hope. It is for them to foster and preserve that pure and elevated standard of morals and intelligence that will enable us to out-ride the storm that overwhelmed many ancient and modern nations. What a glorious and exalted mission for the American agriculturist. If pauperism, vice and crime threaten us, we hold in our hands the reliable antagonisms, and the certain preventives. Ignorance, the prolific source of degradation and violation of law, the school house with its mighty reformatory and elevating power, will prevent. Indolence, loafing in the grog shop, and gossiping at the street corners, is to be prevented, or cured, by diligent attention to business. Inspired with a high regard for the dignity and value of labor, having an avocation worth following, and following it in earnest, will make a man useful and happy. He will have no time for demoralizing amusement and guilty pleasure; and this preserves him from the follies and vices that would prove his ruin. Our youth taught to work, and to esteem it a duty and a pleasure to labor, have a rich inheritance. They are, indeed, independent in the highest sense. They can, and will, take care of themselves. I bless God that we live on "free soil," where we can teach our children to work, without involving their degradation, or our disgrace. Our daughters, educated in the realities of life, willing and competent to discharge domestic duties, excelling equally in the kitchen and the parlor. Such an education will give them a sound mind, and a healthy body—their heart and hand will be a prize, which none but the virtuous and the worthy can secure. Our sons, at home between the plow handles, in the fields of literature and science—scholars, and not smatterers—working, and not speculative philosophers, will be men of business, of energy, of capacity, and of character. Our children thus educated, will go forth prepared for the conflicts of life; its trials will not depress—its difficulties will not discourage—its smiles will not deceive them. Our dearest interests, social, moral and civil, will be safe in their hands, and posterity will call them blessed. There are many elements now in operation, with a strong and decided tendency to place a premium, an exemption from the drudgery of labor. One tells of its degradation, another of its meager profits, that it is low and groveling, unworthy of refined taste and sparkling genius. Hence, a rush to the "professions," to government offices, and mercantile pursuits,

anything, to avoid earning a livelihood by the sweat of your brow. This is a great and growing evil, and the farmer has much to do to counteract and remove it. His model farm—his premium stock—his happy home, radient with social and intellectual enjoyments, will work a reform. Not a word would we lisp derogatory of the toils and triumphs of intellect, or of avocations that do not involve the use of muscle. It is that morbid hankering after something other than work. That "ignus fatuus" that leads men to attempt what God and duty never intended they should, that we condemn. The spread of our commerce, the increase of our manufactures, demand in agriculture a corresponding expansion. The effects of demand and supply will be felt in the increased productions of the earth, and this will aid the work of reform. Farming will become more and more a profession, vested with dignity, emolument and honor. These annual exhibitions invest industry and labor, with interest and importance; they excite a spirit of improvement, and exert a healthful moral influence, all combining to emancipate labor from its degradation, which is the harbinger of a brighter and happier day. Ignorance and idleness are not the only evils that the farmer is to oppose and remove. In the list of destroyers and disorganizers, threatening our dearest interests, there are three I's; two we have considered, and shall close our remarks with the third, *Intemperance.* In a State, on whose statute books may be found legal enactments, capable, when faithfully executed, to suppress the evil, I need not sound in the ears of the farmer, the tocsin of duty—to the ballot box! to the ballot box!! You have been there, and left your mark that carried trembling to the center of the rum bastions. A law in advance of public sentiment, and of the moral tone of the community, is a dead letter. The sentiment against intemperance, in its causes and evils, that pervades the great heart of Indiana, when waked up and united, has the power to unloose the lion of the law, and to suppress the fearful evils of intemperance.

What a triumph for the manufacturing, mechanical and farming interests of Indiana, would be the complete suppression of the liquor traffic. Not a drunkard in the land! What a fact! The very idea sends a thrill of joy, of extacy, through every heart. Over the complete suppression of the liquor traffic, a shout of deliverance would come forth from the four thousand homes in Dearborn county. My son will never be a drunkard. My daughter will never weep in the anguish of soul, over the inhumanity of a drunken husband. Jails to let, tears dried up, humanity triumphant! The success of this glorious reformation rests upon the farmers of Indiana. You are not a forlorn hope, but an invincible phalanx. Meet the foe in his strongest positions—the manufacture, the traffic, and the use. Here is the Redan, the Mamelon, and the Malakoff towers. Look over your waving corn fields, and vow on the altars of temperance—take the law and use it carefully, and by total abstinence, silence the adversary, and by the help of God, Sebastopol is fallen, is fallen! and victory is perched on the banner of temperance—the demon is enchained—the people are free.

Farmers of Dearborn county, your agricultural festival is drawing to a close. Your exhibition has marked an era of decided progress. With your wives, your sons and daughters, you have nobly done. Grateful for the past success of your labor, encouraged for the future, resume your honorable pursuit with a still higher standard of improvement—toil for yourself, your family, your country and your God. Flowers yet fairer, yet sweeter, will strew your path, and heaven with ap-

proving smiles, will greet your onward steps. Guided by the landmark of truth, its holy light will cheer your onward course, and grant you at life's last moment, an abundant entrance into the regions of love and joy.

ADDRESS

Delivered before the Hendricks County Agricultural Society, March 1, 1854.

BY REV. W. W. CURRY.

I have been invited to address you to-day, as an agricultural society; but as I am not a practical farmer, you will not, of course, expect me to give you instruction in the practical operations of farming. I shall not attempt to tell you how to till the soil, harvest crops, or rear stock. Such matters must be left to those better acquainted with them.

But you have met to-day as a *society*. In this is involved a *principle*—one not peculiar to farming, and, indeed, whose importance is but too little recognized by farmers—a principle whose recognition and proper application I believe to be of the highest importance to all classes of community; and that principle is *association*.

This principle is derived from two elementary facts; and these are, first, the weakness of man as an individual, and the strength of men united; and secondly, the community of interest amongst men.

But little reflection is necessary to see the propriety of this position. We have but to survey the condition of man, to trace his history from the cradle to the grave, and we shall find him continually dependent on the kind offices of his fellows for sustenance and comfort, and continually seeking that aid. Not only in infancy is this true, but in manhood also; and there is no pursuit in life in which a man is independent of others. Farming is the most so. Yet the farmer is dependent on the mechanic for the implements of his profession, and on the merchant for at least a portion of his supplies. And in proportion as a country becomes populated, and man civilized, does this dependence increase. God made us social beings, and this mutual dependence is the means of developing the social nature. From the beginning it has not been good for man to be alone. Hermitage is an unnatural, and, to any great extent, an impossible state of human life.

Hence it is that we always find man living in society. Even the rudest and most barbarous people combine together for mutual protection and assistance. For this reason governments are instituted; and republican governments especially recognize it. Each one agrees to submit to the control of all, for the sake of the benefits he derives.

But this principle of association is valuable not only in governmental affairs, but in all the industrial as well as intellectual pursuits of life. In union there is strength. No truism is more familiar, or more readily granted than this. You cannot raise a barn, make a road, or haul a saw-log, without learning that what one cannot do at all, or only with much time and labor, many can do with speed and ease. And this should teach us not only that there is strength in union, but also that there is a community of interest amongst men—that the principle of antagonism is false.

It has too long been the thought of the world that the interests of men were hostile, and that the proper course of life was for every man to take care of himself regardless of others Hence the motto so many adopt in practice, if not in theory, "every man for himself and the devil take the hindmost;" also, expressed in regard to pecuniary affairs in this form, "get all you can and keep all you get." These precepts are most unrighteous and false. They breathe a spirit worthy their father, the evil one. Even that other motto, which meets with such general approbation, "live and let live," is unchristian and wrong. It is dictated by a pure spirit of selfishness, and is inconsistent with the paternal feelings which should subsist between men. The true motto of life, that which meets alike the wants of man's social nature and the requirements of a christian morality, is to "live and help to live." The true interest of each is the true interest of all. When this is learned as a theory, and felt as a spirit, it will be reduced to practice; and then, and not till then, will a death blow be given to selfishness.

Clannishness in churches, in the social state, and in nations, is the result of the perversion of this principle. The form is chosen for the substance; the temporary organization for the principle it embodies. Our affections embrace the few enrolled, instead of the many interested. All organizations ought to be intended to advance a principle, and not merely to benefit an individual; hence to be based on a recognized truth, not a temporary interest.

Now, why should not this great principle of association be made available to the interests of agricultural science and art, as well as to other interests? Corporations and societies are formed to develop the mineral and commercial resources of the country, to advance the arts and sciences, and to promote mental and moral improvement.

Industrial associations for mutual assistance in need, protection from oppression, and improvement in skill, are common; and certainly agriculture is a matter of sufficient importance to demand united consideration and attention. It must be evident that farmers may be benefited by judiciously constituted societies, unless they are more stupid or more selfish than other men. But this will not be admitted. Nay, they are noted for hospitality and generous dispositions, while it is a fact that many of the most intelligent minds of the land are farmers and their sons.

Still it must be admitted that farmers generally possess the least amount of general information. Mechanics are in advance of them in this respect. And yet farmers have more leisure time for improvement. Why then is it so? The great reason is, that they live more alone. They are not in such constant association with their fellows. They have not so much interchange of thought and opinion; and hence they have neither the occasion to use, nor the opportunity and stimulant to acquire such knowledge. And from this state of fact, too, has resulted the

ridiculous error that farmers and farmers' wives need no education. That if they can calculate the price of their produce and purchases, it is all sufficient—an error so absurd that it would be a waste of time to expose it.

The want of this mental culture is of great disadvantage, both socially and pecuniarily. How often are farmers tickled at the idea of being called "the bone and sinew of the country," by some political place-hunter. They take it as a great compliment. But is it so? Of what use is bone and sinew? Certainly of none in itself, though useful when directed by *brains*. And it is brains that rules the world, of both matter and mind. Your horse has more bone and sinew than you, which is the better?

And does not your superiority consist in your intelligence? No. If your bones were iron and your sinews leather, for strength, it would be of no use but as your minds directed.

Brains, then, are better than bone and sinew; but brains to be valuable must be used. Millions of money locked up in the chest of the miser is of no benefit. It is useful only as a circulating medium—only as it is used. And so a common axe well sharpened is of more practical value than a first rate one dull.

The farm laborer who works for his fifty cents a day may have as much brains as the member of Congress who receives his eight dollars. Why this difference then? Because the mind of the one is cultivated, the other is not. And so it will ever be, until farmers seek to be the brains of the country instead of its bones and sinews.

I have heard persons complain of these social and pecuniary differences, asserting that those who did the hardest work, that is, physically, should receive the highest wages. But this is not so, unless the hands are superior to the head—dead matter better than living mind. No, the head directs and will always direct; for such is the Creator's design. And if farmers or other laboring classes are tired of these results, they must put a stop to them, not by abandoning their occupations, but by improving their minds.

As I have said, from the want of association, farmers have not felt the necessity of mental cultivation as they ought. But an improvement is going on; they are becoming more and more convinced of the necessity of such culture, not only as the means of elevating their social position and influence, but also as a matter of pecuniary interest. They are finding out that if they can with the same labor raise an equal amount of produce on half the quantity of land, by improved means and modes of cultivation, that it is far better to do so, because there is but half the capital invested. Indeed some few have already found out that their fathers did not know everything! That it is better to divide the meal than to put a stone in one end of the bag!

The fact that agriculture is a science as well as an art; that it requires study as well as labor; that a man does not know all about it when he can plow a furrow and cradle grain, is beginning to be appreciated. Vegetation involves some of the most intricate problems of science, such as may be better solved in the laboratory of the chemist than in the field of observation; and hence scientific book-farming may not only be useful, but highly necessary to the best results.

Now, as a means of intercommunication; of increasing the extent and quality of agricultural knowledge; of exerting a spirit of enterprise and emulation, by

exhibiting the best practical results; of inciting an interest in and love for their business, and hastening the progress of general improvement; such societies as this, of which you are members, are valuable. And the rapidity with which they are multiplying, the increased influence they are exercising, and the care with which they are fostered by the State, demonstrates their value; and be assured that you will find in your individual interests the development of the resources of your county, and the general improvement of the farming community, a rich return for the labors put forth. The seed thus sown will in due time produce an abundant harvest.

I need not, at this time, discuss at large the specific objects and particular benefits of this Society. The general features of such associations already alluded to must suffice.

To the citizens of our county, and especially the farmers, I commend these thoughts; and upon them would I urge the propriety, nay the duty of becoming members of this Society. The utility and necessity of association, and the individual and general benefits resulting from them, have been mentioned. Hence an enlightened selfishness, no less than a generous philanthropy, should urge them to the union.

I anticipate, and I hope I shall not be disappointed, that at the close of this year, our rolls will exhibit such an increase of numbers as will prove that there is in our community a just appreciation of the means of improvement with which we are so highly favored.

ADDRESS

Delivered before the Hendricks County Agricultural Society, June 7, 1854.

BY REV. B. F. COLE.

OUR GEOGRAPHICAL POSITION AND DESTINY.

I. We occupy, geographically, a northern latitude. This is favorable to our symmetrical development. Southern latitudes, that is, latitudes within and south of the tropics, do not appear to be favorable to the symmetry of the human form. Degeneracy of the human form begins as we enter the tropics, and progresses even to the extreme south.

The Arab shows signs of a degenerate symmetry; so also, the South American Indian, the Negro, the Hottentot, the inhabitants of Terra del Fuego, and of Australia. These last are the lowest in the scale of symmetry of form.

The reverse within prescribed limits, is true of the symmetrical development of brutes. There are the lion, the zebra, the gazelle, and the Arabian horse.

Southern latitudes develope also, in brutes, great size and muscular strength. There are huge serpents, and mammoth quadrupeds, such as the tapir, hippopotamus, rhinoceros, and the elephant.

Southern latitudes develop brutes, the northern develop men. Extreme northern latitudes present in the whale, an exception to this conclusion, but do not destroy its general character.

2. We occupy, geographically, a temperate region. This is favorable to the development of our energies. Energy does not characterize the inhabitants of regions not temperate. The energetic inhabitants of our globe, are found in the temperate regions, which embrace Central Asia, Central and Northern Europe, and Central North America.

The inhabitants of Northern Asia, North-Eastern Europe, and of Northern North America, are benumbed with the cold arising from the Frozen Ocean. Their struggle is for life, and not for progress and conquest. The inhabitants of the tropics are prostrated with heat. Their attention is directed to repose and shade from the scorching sun. The Chinese and Hindoos are dreamers and mummies, rather than *wide awake* and *active* men. The inhabitants of Africa, within the tropics, exhibit life with no result indicative of energy. Central America and South America present the monotonous scene of a stationary population.

The inhabitants of the temperate regions are never at rest. They have explored the earth and also the heavens! They subject the elements of nature to their control! They are the merchants, manufacturers, and governors of almost the whole world, and I might with propriety say, that they are the farmers of the whole world, for out of the temperate regions few farmers can be found.

What energy is displaying itself among *us!* Our objects of enterprise are such as indicate a boundless activity. This mighty and indomitable energy, is incidental to our origin, and to our location as inhabitants of a temperate region.

3. We live in a low plain. There are plains of vast extent, so lofty as to be above the genial influences adapted to successful agriculture. Such are the plains of Central Asia, where agriculture is scarcely known. There the inhabitants live a roving life, following their herds and flocks, in search of pasture. There are also, the great plains of the table lands of South Africa, and of Mexico, of little agricultural power compared with neighboring valleys.

The plain in which we live is a low plain. It is a valley, in which for long centuries the ocean found its bed! Here it has left its rich deposits, which are the basis of our agricultural wealth. It is a valley in which the waters from distant mountains and hills congregate and form rivers of the first magnitude, one of which, from its length, depth, and majesty, has usurped the title of "Father of Waters." This valley is emphatically ours, and though in its bosom are precious and valuable mineral deposits of lead, iron, and coal, yet its most abundant treasure is its agricultural resources.

4. We have a moist climate. In some countries, though low and level plains, rain never falls! This is true of the low plains of Northern Africa. The clouds charged with rain, from the Atlantic and Mediteranean Seas, are either obstructed by the mountains of the coast, or dissipated by the intense heat of the desert. The plains of Peru, though looking directly out upon the Pacific, are never refreshed with a shower! The rains fly from them with the trade winds.

Our valley, owing to its geographical position, is continually watered by easterly winds from the Atlantic, and by the south-west winds returning full of moisture, from the Gulf of Mexico to the Frozen Ocean. These south-west winds sweep up this valley, and water its whole extent. Were our southern and eastern borders skirted with mountains, as is our western, then would our now fruitful valley be comparatively a desert The moist winds would be obstructed, and but little or no rain, from the source from which it now comes, would fall upon us. The large lakes which lie upon the north and north-east of this valley, our mighty rivers, our numerous streams, our vast and gigantic forests and our wide spread prairies, all tell of the moisture of our climate. Vegetation claims this valley as its domain, and invites its inhabitants to the pursuit, and to the rewards of agriculture.

This, then, is our geographical position: a low plain, in a northern latitude, with a temperate region, and a moist climate.

These indicate our geographical destiny, which by nature, is that of an *agricultural people*. A destiny in view of which we have no occasion of complaint, but are rather incited to profound gratitude. By this *destiny*, we are placed at the source of independence! We have not only enough in our resources for our own maintenance, but enough for the maintenance of the world! By this *destiny*, we can command leisure for personal and social improvement. No pursuit upon so extensive a scale, gives so much leisure and opportunity for improvement as agriculture. If we are disposed to improve, we have scarcely anything to prevent our progress.

Agriculture offers a fine field for mental and scientific improvement, and in this department minds of the highest order might profitably expend their powers. Agriculture is not now mere toil, but an *art* and science of no secondary character. We therefore, should conform ourselves to our *destiny*, and be what nature calls us to be: agriculturalists. It does not follow that each should be a practical farmer, but that every one should treat farming as the prominent secular interest of our position.

It seems to be our *natural course:*

1. To adapt our lands to the climate. This is, and must continue to be moist, and our lands must consequently, to a great extent, be wet. It is therefore our policy to clear away the forests which shade our lands from the wind and sun—to keep our streams clear from obstruction, that the waters may run off freely—to resort to artificial drainage, particularly covered ditches, which not only carry off superfluous water, but loosen the sub soil, and act as condensers of moisture in time of drouth. An incidental effect of this policy is, we improve our health by diminishing the source of miasma, which occasions our agues and fevers. By the process of draining lands now considered worthless will become productive and valuable. This result has been attained by this process, to so great an extent, as to render it no doubtful experiment, but a fixed certainty.

It seems to be our natural course:

2. To ascertain for what products our soils are best fitted. It is certainly evident from the different elementary substances, of which different vegetation is composed, that a soil adapted to the growth of one product, may not be fitted for another, and that soil fitted at one time for a given product may not continue to be,

because of the exhaustion of one or more of its constituent elements; it cannot furnish elements which it does not possess.

A soil may also possess elements which need the addition of other elements as a stimulus to their own development. These things must be ascertained by chemical analysis, or by observation and inference, otherwise we must labor at random, and subject ourselves to disappointment and loss.

It seems to be our natural course:

3. To care for our stock. Our domestic animals are of foreign origin. This is not the geographical position best adapted to the highest development of the brute. The cold of our region, and the wetness of our climate, may both tend to the deterioration of our domestic animals. These cannot of themselves counteract this tendency. We must do this for them, and make their condition to approach as far as practicable, to that in which uncared for, they naturally thrive best. They need not only suitable feed, but cleanly attention, warmth from the cold, shelter from the storm, and a dry retreat in wet weather.

4. To establish schools for scientific farming, seems also to be our natural course. So great an interest as agriculture, ought not to be prosecuted as unintelligent labor. A commonwealth such as ours, could well afford to care for agricultural education. We owe this obligation to our children, that the pursuit which most of them must follow, and in which all are interested, should be not laborious only, but intelligent, attractive, and profitable. It would be to our honor as a State devoted to agriculture, to provide by public endowment, an *Agricultural Institution* of the first order, to which our youth might have free access, and from which they might carry away that mental discipline and scientific information, which may make agriculture what it ought to be: *the chosen pursuit of the world.*

ADDRESS

Delivered before the Hendricks County Agricultural Society, December 20, 1856.

BY REV. C. S. BURGNER.

By the solicitation of your secretary, I appear before you for the purpose of offering some remarks for your consideration, on the very laudable and important subject of *agriculture*,—a subject very interesting to the farmer, and peculiarly important to the interests of our nation, State and county, and I can but regret that you have not been more happy in the selection of a speaker. Indeed it seems to me that a man whose business it is to preach the gospel, and to watch over the spiritual interests of men, ought not to have been invited to address farmers on

their peculiar pursuits. Every trade and pursuit of life should be advocated and taught practically, by its own followers, and every man should not only inquire into the peculiarities of his own pursuit, but should strive to become a teacher and a master.

I do not wish to be understood to mean that I feel no interest in the farming enterprise, far from it, as a citizen of Indiana, I feel it not only my right, but my duty, to be in sympathy with this and every other good enterprise of the State.

The man who feels no interest in agriculture, is certainly in want of sympathy for the human race, and regards not their comfort and happiness. Be indifferent to the laying of this corner-stone of our country's greatness! Why, gentlemen, I would almost as soon be indifferent to the genial rays of the sun, and the showers or purifying elements of the atmosphere. No, my fellow citizens, I rejoice in your organization of an Agriculturul Society in Hendricks County, and it is because of the sympathy and high regard I have for your enterprise, that I appear before you humbly though honestly, to advocate its cause, and promote its interest by endeavoring to make such remarks as may tend more fully to enlist your feelings, and increase your energies.

With regard to the importance of a well regulated, scientific system of agriculture, there can be no doubt by any individual who has given it a moment's investigation. It is a fact which cannot be denied, that the *farmer's* interest will always be regarded as the basis of our nation's prosperity. He is, emphatically, in this respect, the first link of a chain which draws after it all the parts with which it is essentially connected, and in proportion to the prosperity of this interest will be the prosperity of all other interests of our country.

Now it is a truth universally admitted, that the sustenance and apparel of all mankind are derived from the earth and the waters of the earth. And the very small portion which is derived from the waters by fishing, makes it a self evident truth that the cultivation of the soil is the paramount interest of the inhabitants of the earth. And it is true that whatever trade or profession those may follow who do not cultivate the soil, they are fed and clothed by its productions. Even *commerce* itself, the self-styled God of our nation, however useful and beneficial to man, and however largely she may contribute to our wealth, would dwindle down, yea, entirely cease, were the cultivation of the soil neglected. Without the aid of bread and clothing, supplied by husbandry, every other enterprise must stop.

Let us look at the matter. The fields of the farmer supply the cotton and the wool, the flax and the hemp, and the cocoons for silk, and these with other productions of the earth, give life and energy to our manufacturing interests, while the grain, meat, &c., furnished by the farmer, are their principal sustenance. Without the supplies furnished by the loom and other mechanical productions, commerce could not exist. I repeat it: That manufactures and commerce depend upon the productions of the soil for their continuance! Destroy the latter and you take away the existence of the former!

The earth is our mother, on whose lap we all repose, and by whom all our interests are nourished. A calling so highly honorable and important, is worthy of being brought to the highest perfection, to be understood thoroughly by all who engage in it. This, however, is far from being the fact. A large proportion of the farmers of this country are ignorant of the best means of deriving profit and

pleasure from their vocation. But I rejoice in the hope that a better day is dawning in this respect. The farmers are beginning to learn that the cultivation of the soil is a *science*, as well as any of the professions. A science almost boundless in extent, and endless in improvement—a science from which all earthly enjoyments are derived, and they begin to think it a matter of astonishment that it should have been so long neglected.

When this western country was first settled, the farmers found the soil so much superior in fertility to that from which they emigrated, and the game abounded to such an extent that a half "*hunter's life*" produced abundance of food with very little tillage, and the thought that "what now is would likely continue," naturally produced indolence and carelessness. But necessity gives rise to *industry* and *invention*, and the minds of farmers are awakening to a better state of things. The old fogy notion that formerly prevailed, that *farming* and *ignorance* are twin sisters, is now regarded as behind the times. Farmers begin to realize that their sons intended for agriculture, should be as well educated as those intended for the professions, for they see that the most successful farmer is not the one who does the greatest amount of labor, but the one who unites the labor of the hands with that of the brain.

Why is there such vast difference in the prosperity of farmers of apparently the same industrious habits? The one becomes wealthy, while the other with all his toil becomes poor, or remains in *statu quo!* The reason is obvious: the former works "head work," the latter does not. He plows, sows, and breeds stock just as his fathers for generations before him have done. He reads no agricultural publications, and knows nothing of the machinery and new modes of tillage, and improved stock, which, within a few years, have rendered agriculture a pleasant and profitable business.

Farmers need intellect as well as any other class of men. In the *animals* there is no improvement. Their instinct admits of none. The woodchuck digs its hole, the bee makes its honey, and the swallow builds its nest, just as they did before the flood. Now if God had intended man to have remained where he placed him; he would not have given him a reason which is capable of choosing the best, and making his condition anything he may desire.

Let farmers then live like rational beings. There is no reason why they should condemn themselves to a life of toil and drudgery. Let them study the science of their profession. The character of the soil, the best means of enriching it, and the agreement each kind of soil has with each kind of grain or seed, &c. Let them take agricultural papers, and read agricultural books, and they will be well compensated for their study and expense. Let them profit from the example of those whose farms are the best cultivated, stock the best blooded, houses the best furnished, liabilities the best filled, and families best educated, and they will find that such do not succeed as much by the labor of the hands as that of the mind.

I am not a farmer, yet I venture the assertion, that an average of eight or ten hours per day for five days in the week, is all any farmer need labor, except some seasons of the year perhaps, may require a little extra, but the average should not be more. And if this position be true, you can have from twenty-two to thirty-six hours every week for the study of your profession. And this is emphatically necessary, for with all the improvements and advancements of our best farmers,

the paragons of the profession, they are all as yet behind the times. They have scarcely entertained one proper idea of what they can do in raising crops, with their heaven favored soil. The idea of a farmer's being satisfied with raising from fifteen to twenty bushels of wheat, forty to fifty of oats, and from fifty to sixty bushels of corn from the acre, is all entirely *wrong*. You may think me enthusiastic, but I venture the assertion, that with the present rates of improvement, in ten years hence, my opinion will be sustained by every progressive farmer in the country.

The Savior spoke a parable, on a certain occasion, as you remember, with reference to the sower that went out to sow, and in that parable he makes this declaration: "That the seed which fell upon good ground brought forth, some thirty, some sixty, and some an hundred fold." Now Jesus Christ was a candid teacher; he never said anything but what was true, and although in this parable he was imparting a moral lesson, yet that lesson was based upon the productions of the soil, and the fact that he made the basis fifty, sixty, and an hundred fold, is conclusive evidence that it was but a fair representation of the crops of Palestine.

If their soil was capable of bearing such a crop, yours is; for a better soil than the State of Indiana has, or with proper culture might have, cannot be found in the world. Hence, I remark, that instead of being satisfied with fifteen, twenty, and thirty fold, it is your right, by proper culture to look for the full measure of the sayings of Christ upon this subject.

Now, if this position be correct, it is nothing more than a fair conclusion, that the farmers of Indiana, by proper management, may increase their average yield of crops at least one hundred per cent.; and the State will sustain double the population she now does, or, in effect, will double the number of acres of land. On our poor soil a still greater increase may be obtained. And when we do this, farming will raise in the scale of reputation and honor at least one hundred per cent.

The occupation of the farmer has been too much underrated, and many parents have made sad mistakes in educating their sons for the learned professions, thinking thereby to elevate their rank in society. This is all wrong! Were I called upon for advice upon this point, to the young man who is about to select a business for life, I would say, apply yourself to agriculture; for in no station can you acquire more glory and honor than in being a perfect master in this business.

George Washington, himself, the father of our country, was a farmer, and one of the best in the United States. Cincinnatus was called from the plow to the dictatorship of Rome, and did not consider himself honored very much at that! King David was a shepherd. Indeed there is no calling in life so favorable to popularity and wealth as that of the *intelligent farmer*. And above all other considerations, it is peculiarly the promoter of health and vigor—a boon worth more than all others—for without this, whatever your position in society may be, you cannot be happy.

Now how, I ask, is the farming interest to be brought to a proper standard, and placed upon an equality with other professions? Evidently not by the old system of fostering ignorance. But for the accomplishment of this laudable purpose we want knowledge, general knowledge and enterprise. For want of these, experiments sometimes prove disastrous, tending to individual losses. But when the

masses are searching for valuable truths, and congregating together on proper occasions, as you have done to day, and do at your annual fairs, to enrich each other's minds by consultation, all will be benefited by the discoveries of each; and none will be made less wise, or less wealthy, by his contribution to the general stock. For by letting mind come in contact with mind, light will be emitted, and the result must be improvement in the object desired.

And it is upon this principle that I assure you of my sympathy in your agricultural association. I look upon agricultural societies as better calculated to improve the farming interests than any other associations. By these societies you excite emulation, and bring into active employment the minds of most of their members; and when different minds are at the same time searching for truths connected with any subject susceptible of improvement, the result must be beneficial.

Permit me, then, in conclusion, to express the hope that you will take a deep interest in this Society, and that you will cherish and act upon the principle that "in union there is strength." Acting upon that principle, you will be well remunerated for all your labor and study. You will build up a farming community in Hendricks county, that for wealth and happiness will not be excelled by any other in the State. You have already some of the best stock, not only in the State but in the United States; and all you have to do is to keep advancing and improving correspondent with the age in which you live, and victory is yours

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ADDRESS

Delivered before the Owen County Agricultural Society, October 5th, 1855.

BY HON. W. M. FRANKLIN.

In an individual enterprise, individual effort properly directed, will generally succeed in procuring the desirable object; but in moral reforms, social regulations, legal amendments, and scientific and public improvements, where society is interested and to be deeply affected. something more than individual effort is required, in order to obtain complete success.

Society at all times, and in all places where there were a unity of principle and interest, in order to produce any great result, requires a unity of action. The maxim that "in unity there is strength," is so well established, and so fully demonstrated by all the various regulations and enterprises throughout civilization, that no man who has at heart the interest, prosperity and welfare of any great public improvement, will hesitate for a moment, to make an effort for unity of action among all its friends.

This being a general principle, and tacitly admitted, if not generally understood by all persons, why is there not a more thorough effort to produce a more efficient unity of action among all the friends of agricultural improvement? Surely this want of energy and action on the part of a number of our citizens who are deeply interested in agricultural progress, cannot arise from want of importance in the object. It is the nursery by which all other pursuits are brought into existence, nourished, cherished and reared into honorable and opulent pursuits of life. When the great agricultural interests of the country flourish, commerce widens and extends her sails throughout every clime and country, manufacturers increase and enlarge their operations, mechanics are invigorated with the pleasant realization and bright prospect of a full compensation for their scientific toil, and the professional man eagerly enters into active life, with a vitality and energy that betokens a renewed skill and attention to business, that will seldom fail yielding a handsome income. But when the great agricultural interests of the country languish, and their products fail, commerce dwindles and sinks into insignificance, manufacturers contract their business and discharge their operatives, mechanics are thrown out of employment, and the professional man suspends operations. And thus the progress and prosperity of the whole country to some extent, are made to depend upon the success of agricultural pursuits. Agriculture is the mother of all other pursuits.

When, then, we have the improvement of the most important branch of industrial life as the object of our organization, ought there not to be among all persons (for all are directly or indirectly interested,) a corresponding effort for the progress and future prosperity of our society?

However true it may be, that the subject which has called forth our present meeting is the strongest in necessity, highest in usefulness, pleasant and healthful in its independent prosecution—yet it is, and always has been the most neglected.

A systematic course of training has ever been considered necessary, to prepare the young beginner to practice successfully any of the commercial, manufacturing, mechanical or professional pursuits, while the simplest practical experience has been thought entirely sufficient to entitle the laborer to the highest wages in agricultural employment. And while the manufacturers and mechanics are making their utmost efforts to improve the quantity and quality of their productions, in order to realize the greatest profits, the farmer is comparatively speaking content to move in the old beaten track of his forefathers, depending on the season and a beneficent Providence for a plentiful crop.

In this age of progress and improvement it is strange to contemplate so many of the ancient manners, customs and implements of husbandry being yet used and practiced by our farmers, which at their introduction, none thought of being anything more than mere make shifts. But by the aid of agricultural societies, agricultural publications, and an enquiring and investigating spirit of public opinion, these relics of barbarism are fast being dispelled, and the beautiful and useful improvements of science, and the manners and customs of civilization are continually taking their places. The idea was once current that because our fathers raised plenty, and a little to spare, therefore we should not try to do anything more, is beginning to be forgotten, and a commendable spirit of emulation in each to excel his neighbor in improvements, in crops and profits is being instilled and diffused throughout community.

And although much is being done in the way of improving the condition of agriculturists, there remains much more to be done before agriculture assumes that high position in society as a science, to which it is justly entitled. And although many of our farmers are in a prosperous condition, and for a few years previous—save last—have reaped a rich harvest; yet it must be acknowledged that the vast surplus which has been raised in this country has originated much more from the over productiveness of our alluvial soil than the scientific manner of its cultivation. For doubless there are some manifest deficiencies in our manner of cultivation as occasionally practiced. Some never plant until seed-time is over; others plant in time, but through idleness, neglect or mismanagement, suffer the weeds and grass to spring up almost unmolested until they have choked and smothered their grain to death long before the time for its maturity, and then at harvest time are left to wonder and complain that they have not as good a crop as their more frugal and industrious neighbor; while others a little more extravagant in their notion, go to work on the system of overcropping themselves; that is, put in more land (I should have said, attempt to put in more land) than they are able to cultivate. There are many instances in which much greater profits could be realized, by an attempt at not cultivating so much land. What is worth doing, is worth doing well, and no man should undertake more than he could *well* do.

But very few of even our more wealthy farmers pay that strict attention that would be desirable, to thorough cultivation. Even the subsoil ploughs and the various machines for planting and sowing grain and harvesting it when ripe, are looked upon by many of our farmers as mere machines of skill, ingenuity and curiosity not to be used in farming. I have no doubt that many of them would find it greatly to their advantage to form an acquaintance with some of these machines, and more particularly with the subsoil plow, and introduce it to their subsoil, and instead of barely scratching over the ground so as to tear down the growing vegetation, and break up loose soil only sufficient to cover their grain, plow deep and thoroughly pulverize the subsoil, then their grain when it germinates would have an opportunity to take root and grow perhaps as fast as the weeds and grass. The practice of subsoil plowing has fully demonstrated that it enables grain to stand much better, both wet and dry weather—in wet weather it enables the water to sink and leave the surface dry, and in dry weather it enables the roots to grow deep and draw moisture from beneath. Another advantage to corn in dry weather is to keep the ground thoroughly plowed. It opens up the soil and enables it to absorb moisture from the air during the night, to assist in keeping the stalk alive during the day.

But the great deficiency in our system of farming is, that we have devoted too much time and attention to the raising of grains, and not enough to grasses.

The pioneers who first settled in this country and broke the forest, must have concluded that our lands were inexhaustible, and some of them have practiced upon the plan that they could always take from the soil and never return anything to it, and they would have enough for all time to come. Hence they commence by clearing off a few acres of their best land, and put it in corn annually from the time whereof the memory of their oldest children runneth not to the contrary, until they have corned and hogged it to death before they thought of enlarging the boundary of their field—some of our low White River bottoms can probably

stand this for several years yet to come, but our high bottoms and uplands certainly cannot, for many of the old fields begin to show very marked manifestations of hogs and corn. Such a system of farming would have long since ruined many portions of the country, and but for the inexhaustible productiveness of the soil we would undoubtedly long ere this time have experienced its ruinous and direful consequences.

It would look much more like scientific agriculture, to see our farmers when they have cleared what land they design for cultivation, manage it in such away as to annually return to the soil as much and even more than they take from it, and improve instead of impoverish their lands. Rotation in crops is almost the only remedy as yet adopted by a number of our farmers. If they would fence in all the ground they owned (for none of them ought to own more land than they have use for being fenced) cut down the shrubbery and worthless timber, and sow the woodlands in grass they would be worth nearly as much to them as the lands cultivated in grains, and there would be no necessity for raising so much grain, their pastures being amply sufficient to keep their stock a considerable portion of the year, and their woodlands which are now useless, yielding nothing but a heavy tax to their owners, would with little labor or cost after their preparation, yield a considerable profit.

And our farmers generally would do well to give more attention to providing good barns and sheds for their stock. Many of them would in a few years gain enough by saving all their provender and the improvement of their stock to pay the entire expenses of the necessary buildings.

When the farmer has got his lands arranged to suit him, his orchard, garden and yard suited to his taste, and his out buildings and dwelling ornamented to his fancy, the next most important inquiry is, how shall the farm be stocked? Shall he retain upon it the unprofitable and old scrubby breeds of different animals, or will he look around and try to make some improvement by the introduction of some new species of fine stock on his farm? He will soon discover that it costs very near as much to keep and prepare for market his scrubby breeds as it would for the same number of finer stock, and that there would be considerable difference in the profits, which he would realize.

The farmers of our county generally, with a few exceptions, are far behind those of some of our sister counties in the quantity and quality of their stock. True, we have made great improvements in the quality of some classes of stock, and that our exhibitions in this branch of agriculture have been quite creditable and praiseworthy. Yet there ought to be more competitors for premiums, and there ought to be more general distribution of fine stock among the farmers throughout the county. I am aware this can only be done by a few of our farmers, who are able and willing to bear the expense of first introducing them, and by care and attention increasing their number so as to distribute them among their neighbors.

In a number of the counties of this State a few of the more wealthy and enterprising farmers have an organization for the purpose of importing and raising fine stock, which is perhaps the most efficient arrangement for that purpose that can be devised, and which would if properly managed, redound to the profit of the shareholders, and by the crosses and sales which in a few years would be made

they would enter into the common use and ownership of community; the whole stock of the country would be improved, and the beneficial results of which would appear for years to come.

As the object of our society is agricultural improvement, no well wisher of the country ought to object or refuse to aid us, on the plea that those of our farmers who have been at the extra expense and trouble of importing and raising superior stock will receive the greater portion of the premiums, when he considers that all such labor and outlay will finally result in good to all, by the general improvement of the quality of stock throughout the country. And the same may be said in regard to those who receive premiums on different grains and other vegetable productions. And certainly no sane man would object to a generous emulation in the mechanical ingenuity, and a reasonable memento to the successful competitor for merit and skill in that branch of useful industry.

I desire to say a few words on what may be called educational agriculture. By this I do not mean that every farmer should have a general education, however pleasant that might be, and necessary to the transaction of his ordinary business—but I mean this, that every man ought to be able to appropriate to his use the beneficial improvements and experience of others. He who desires to know nothing more of practical farming than what he can learn from his own personal experience is sure to live and die a poor farmer. The day certainly has long since passed away when it could be said, that if a man was not good for anything else, he would yet make a good farmer. Men never were, and never will be good scientific farmers by nature. There are a great many things about this science as well as any other, which must be learned before they can be practiced with entire success. And although many condemn what they are pleased to term book farming, yet they are almost daily practicing upon some of the principles and relying upon some of the sources of educational farming, they are continually learning and following the advice and experience of some of their neighbors; and I would like to know how much more that experience and advice coming from a neighbor is worth than if read in and learned from a book. Doubtless his neighbor if a good scientific and practical farmer, originally learned a good portion of his agricultural knowledge from the different publications. Then why not each farmer for himself patronize, study and investigate the different agricultural publications and improvements? and not be like the leech upon the body politic, always extracting, and never imparting anything in return. And would these opposers of book farming act the part of the working bee and not the drone, they could soon be their scientific neighbor's equal in intelligence, and occasionally contribute to the general stock of agricultural knowledge.

It is impossible for a man who never takes or reads an agricultural publication, never becomes a member of an agricultural organization, never attends their exhibitions, and never pays any attention to the many useful improvements in implements of husbandry, ever to practice educational and scientific farming.

Before closing these remarks we can but congratulate those of the fairer sex who have honored us with their presence. Ladies, we thank you for the interest you have manifested in this our great and mutual cause. No person can look around and examine the various articles here on exhibition without discovering at once the beautiful specimens of your own handiwork. "The thought has often im-

pressed me that if there is one spot on earth more congenial than all others to the modest, intelligent and assuming spirit of woman, that spot is the humble cottage of the agriculturist." Ladies, we earnestly solicit a continuance of your co operation. We need the encouragement of your presence and participation. We feel the smiles of your approbation, and know that our cause is just when supported by your influence.

Gentlemen, I cannot conclude without impressing on your attention the importance of a full and efficient effort in behalf of our society. And as an incentive to action, I would suggest, that as many of our farmers and mechanics, as can, attend the State Fair to be held at Indianapolis, on the 17th, 18th and 19th instant. They will there see and learn something of what other portions of our truly great State are doing in this most magnificent and all important work of agricultural improvement, and they will return home more fully imbued with the necessity of a more united effort in our behalf. And they will go to work, and not only act themselves, but earnestly solicit the aid of all their neighbors, and never cease until community is aroused to the importance of the subject. I have no doubt but if the farmers and mechanics generally of this county, would attend the coming State Fair, that by the time which our next County Fair shall be held, our society would have increased in numbers sufficiently to afford handsome premiums for all the meretorious articles exhibited, and they would make such an improvement in their stock, and grains as well as other articles that would come in competition, as to give our society such an impetus that nothing would likely check its progress in future usefulness. And our future exhibitions would not only be creditable and honorable to the country—but would be of lasting encouragement and benefit to the general cause of agricultural improvement throughout the country.

Then would appear the great results of associated effort; then would farmers hold up their heads and glory in the fact that they are farmers; then would agriculture assume the position of a science which could be both taught and learned. Then would the agriculturist stand in that high position in society, which his cause justly merits, and that nature designed he should occupy.

ADDRESS

Delivered before the Laporte County Agricultural and Horticultural Society, October 12, 1854.

BY M. K. FARRAND.

As the mariner, tossed upon the billows of a tempestuous sea, hails with delight the returning sun, so we, from the turbulent and exciting political contest that has just passed, turn with pleasure to contemplate the arts of peace.

The plow is taken from the finished furrow and its shining share is placed beneath its winter shelter. The ox is unyoked from his accustomed toil, and grazes contentedly in yonder pasture, or ruminates beneath the spreading trees. The hoe and the spade, with all the implements of husbandry, have been gathered to their respective places. The tools of the mechanic are laid aside. The leger of the merchant, the briefs of the lawyer, and the nostrums of the physician are left behind, and all have come up here to witness the result of their united efforts and the prosperity of our country.

It is needless for me, at the present time, to expatiate upon the subject that has called us together. Its antiquity is too great to be questioned; its importance too apparent to be doubted; its birth was with the world; its starting points the first leaflet that sprung from Eden's opening soil; its gaol perfection and the end of time. It is the great corner stone upon which is reared the superstructure of humán society. Though it has been hallowed by the hands of prophets, and dignified by sages and kings, yet, till within a few years, it has been left as only worthy of the serf and plebean But it has now assumed the attributes of a science. It now begins to assume the character and spirit of the age. That spirit whose motto is progress—whose watchword is onward; whether it be the star of empire or the steamboat of empire; whether it be the wheels of destiny or the wheels of a locomotive; whether it be the march of mind or the march of the news—and bids fair to take no second place in the grand race of human progress.

The first object of the practical agriculturist, in setting out for life, is to secure a few broad acres that he may call his own. Some one has said "an honest man is the noblest work of God," and we might add, an honest man that stately treads his small domain, himself the lord, and to whose manly toil the conscious earth yields sixty and an hundred fold, his life is noble, and the elements so happily mixed within him, that nature might stand up and say to all the world, this is a man. To bring it in a proper condition to minister to his necessities, his wants, and his pleasures, he brings to his aid his own observation and experience, and the observation and experience of others.

True the time has been when both observation and experience, as regards practical agriculture, were repudiated. It is not passed the remembrance of some here when the mill-stone was an indispensable article of every farmer; when the noble horse was compelled to drag his weary load attached to his tail; when the wooden plow was the only one competent to turn the furrow, and the iron mould-board an innovation not to be tolerated. But that time has now passed. The spirit of inquiry has gone forth, and man is not content to plod along in the beaten path of his fathers, simply because they traveled there before him. The doctrine that we must do as our fathers have done before us is no longer received as orthodoxy, and the question now is, not what is to do, but how to do it in the least possible time. As fifteen minutes in time will determine the shortest rout from the Mississippi to the Atlantic, so fifteen minutes in plowing an acre of ground, or fifteen minutes in harvesting an acre of grain, will determine the machine that is to be used.

Among the many aids for improvements in agriculture is the organization of societies like this. Do not imagine that this association is organized simply for the purpose of conferring premiums upon the successful competitors, It has a

higher, nobler, and more extensive object to attain. It is here that you compare notes It is here that you acquire a knowledge of improvements in stock, agriculture, and machinery. The horse, in all his varieties of fleetness, strength and endurance, passes in review before you. Blooded cattle are here submitted to your examination. The finest variety of sheep expose the texture of their covering to your inspection. It is here that you test the character, fitness, capability, and performance of all the various machinery for saving human labor.

The silver cup, the golden medal, or the flattering diploma, alone, would be a small remuneration indeed for the trouble and expense of preparing your articles for successful competition. It is not individual success alone but the general good of the community that is the prime object of this association. And perhaps I may safely say that the benefits derived in one year to our county from this Society, in the improvement of stock and machinery, in the cultivation of plants, fruits, and grains, is worth more than all the premiums this Society will ever confer.

It is not my province here, fellow-citizens, to teach, instruct, or direct you in any of the duties of your calling. You are far more capable of doing that than myself. It is for me to suggest, and for you to investigate, discover, apply, and carry out those principles and improvements into practical operation. Amid all these inventions and discoveries for the advancement of agriculture and the arts, permit me to call your attention, for a few moments, to a suggestion or two; and first, the subject of increasing the productiveness of our soil. It is said that "the man who causes two blades of grass to grow where one grew before, is a public benefactor." How much more so is the man that shall double or triple the productions of our soil.

Necessity is truly the mother of invention, and you have not as yet been *compelled* to force from the reluctant earth any more than she sees fit to yield; but the necessity of the case compelled you to bring into existence machinery for securing that already produced.

If you should suddenly be carried back in improvements thirty or forty years, to the time when all your grain was harvested with the sickle, or go back no farther than twenty years, when it was done with the good right arm of the cradler, how much of your waving harvests would again descend into the earth before you could store it in your graneries?

The necessities of the case have compelled you, in the language of another "to import from the busy regions of invention, five millions of powerful yet passive laborers. Laborers that consume neither food nor clothing—that neither sleep, weary, or sicken. Gigantic laborers, with wooden muscles and nerves of iron, yet set in motion by a single touch—powerful as Jove yet obedient as a child. Ingenious laborers, that rival in the delicacy of their operation the touch of man, and put to shame the best exertions of his skill. Patient, obedient, and submissive, from whom no strikes need be feared, and who can neither suffer cruelty nor experience pain." It is as if you had invoked aid from heaven to stand by and assist you in your severest toils, and render you easy in circumstances and rich in all the necessaries, comforts, and luxuries of life. A master instead of a slave; a being with leisure for enjoyment and improvement; a freeman delivered from the original curse, which declared that in the sweat of his brow should man eat bread all the days of his life.

But there are laborers of wood and iron supplying the place of human sinews and human muscles, to secure that which is already produced, and not one is adapted to wring from the reluctant soil one grain more than it has yielded centuries ago; but it is because the necessities of the case have not demanded it. But do not think that your prairies have done their utmost or exhausted their resources in production and reproduction. The time will come when by the sure laws of population you will be compelled to produce double, and even triple, from the same quantity of land that you now do. The acre that now produces thirty bushels of wheat must be made to produce sixty, ninety, and even more. The land that you now consider entirely worthless, barren, and unproductive, must be made to contribute to the support of a superabundant population.

How short is the time since the vast tracts of marsh lands that surround us were considered utterly valueless—never to be reclaimed. Yet you have now in your mind's eye the day when they will be second to none.

We have but little conception of the capabilities and vast resources which lie hidden beneath the soil on which we tread, waiting but for the hand of the discoverer to touch the secret spring and open them to our view—waiting for the voice of science to speak and call forth her talent, the extent of which we have little dreamed.

There is no exception to the immutable laws of progress. The same principles that govern your progress in the improvement of your stock, and the cultivation of your fruit to its present degree of perfection, (and of which ample evidence surrounds us to day), will, if carried out, draw from the almost conscious earth ten, twenty, and a hundred fold more than you now receive.

The barren rocks and cliffs of New England, which once scarce afforded pasturage for the nibbling rabbit and burrowing wood-chuck, now vie with your rich prairies in the amount and variety of their products. If such is the result on those sterile cliffs, what indeed may not be accomplished from the rich mould that overlays the almost entire extent of our county? If this is to be accomplished, why need you wait till stern necessity compels you to bend your energies to the task? You may as well receive the benefits resulting from an increase in the quantity, quality, and variety of your productions, as those that come after you. It is true that it will reqnire patient investigation, repeated experiment, laborious and scientific research, to accomplish the end. It will be necessary that you should educate and prepare yourselves and your children for the work; but the object is well worthy of the attempt.

In the language of another, "he who would increase the productiveness of the soil, multiply the number of its products, or perfect their qualities, should put the plow first of all into the mind of the occupant, and follow the furrow with the seeds of thought. He who cultivates farmers cultivates their farms. and the best crop in the whole round of agriculture is a crop of sagacious, reflective, and industrious men.

The farmer, then, should be thoroughly educated. By this I do not mean that it is absolutely necessary to dig into the mysteries of the classics, to pore over Cicero and Virgil, or decipher the Hebrew and Greek, but his training should be of a thorough and practical kind, especially should he acquaint himself with the general principles of agricultural chemistry. The whole department of agriculture

is one grand laboratory of chemical experiments. From the plow to the dairy—from the decomposition of the soil and the vegetation of the plant to the manufacture of butter and cheese, and all the articles of domestic use, is but one continual series of chemical combinations and decompositions; and of the nature of their analysis and combinations, how many are as ignorant as the veriest clown. To be constantly surrounded with crucibles, receivers, and retorts, would indeed be folly and worse than useless; yet you should be so well acquainted with the science as to know the constituent principles of the soil, and which is best adapted to its particular variety of production—to know the influence of salts, alkalies, and acids, upon the growth of vegetation. Then will you, in some measure, be prepared to enter upon the work in which you must sooner or later engage—the work of improving the productiveness of your soil.

There is another suggestion to which I will call your attention before I close, and that is, an exhibition of a proper degree of taste in the arrangement of your farms and dwellings. The time has now passed when you are confined to the simple necessities of life. Heretofore we have been simply existing—it is now time to begin to live. Our dwellings should be made the center of attraction, around which all our affections cluster. It is an eye-sore to all of you to see a field in which the weeds are running a race with the corn and bid fair to win; or another in which the sorrel is battling with the wheat for the right of possession, with all the appearance of success; or to see fences of such excessive timidity that they modestly hide themselves between two rows of brush. And why is it not just as much so to see a lawn or yard, which might be made "a thing of beauty, which is a joy forever," strewn with broken carts, ox yokes, boxes, and lumber, in the most interesting confusion, and the dwelling itself kept from falling by the kindly support of rails and pieces of boards; and yet, with but little care and scarcely increased expense, you may make your dwellings the abode of refinement, beauty, and happiness. It is but a little thing to tastefully lay out a yard with rural walks and arbors, planted with beautiful shade trees and shrubbery, in which you will be assisted with tender hands and sympathizing hearts—your windows encircled with a rich foliage of creeping vines, whose trembling flowers fill all the air with grateful odor. How meager even would be the exhibition of our fairs without being decorated by the hand of taste. There may be natures so obtuse as to be insensible to the beauties of the vegetable creation, but

> He that hath no beauty in himself,
> Nor is not moved by sight or smell of shrub or flower,
> Is fit—not "for treason, stratagem, and spoil,"
> But for a miserable, melancholy old bachelor.

I have briefly, fellow-citizens, alluded to a few suggestions for your consideration, for you to digest, investigate, and, if of any value, to adopt and carry out.

Situated in one of the richest regions that the sun in his diurnal course shines upon—a region fertile as the Nile and far more beautiful—a climate that produces all the necessaries and most of the luxuries of life; where indulgent nature has poured her beauties with almost wasteful profusion; where fertile fields of waving grain bend gracefully to the caressing breeze; where blooming orchards, teeming with the luscious peach, the blushing apple, and the mellow pear; it is for you to say whether the improvements in all the departments of agriculture should be

commensurate with the advantages that we possess, and the increase in the productiveness of our soil keep pace with all the improvements of the age. Then shall our county be as noted for its advancement as it is unsurpassed in fertility of soil—till you make it like that

> Where spades grow bright and idle swords grow dull;
> Where jails are empty, and where barns are full;
> Where church paths are with frequent feet outworn—
> Law court yards weedy, silent, and forlorn—
> Where doctors foot it and where farmers ride,
> There health abounds and wealth is multiplied.

ESSAY ON BOTS IN HORSES.

BY DR. HAYMOND.

That the worm known as the bot, which infests the stomach of the horse, is produced from the eggs of two species of gad fly, one of which, and the most common, is the *œstrus equi* of naturalists. This fly lays its eggs mostly upon the legs of the horse, and nearly always in reach of his mouth, and upon those parts he is in the habit of licking and biting. These eggs, in a few days, are ready to hatch upon the application of heat and moisture. If bitten or licked off by the horse at this period, they immediately burst, the worms come out and are carried to the stomach of the horse with his food or drink. They are furnished with two hooks, one on each side of the mouth, which they immediately stick into the mucus coat of the stomach and there remain until fully grown, when they detach themselves, pass on through the bowels, and finally bury themselves in the ground, from which after passing through the chrysalis state, they emerge perfect flies, ready again to deposit their eggs. These flies possess wonderful vital powers, and will endure a greater amount of mutilation, without apparently producing any pain or debility, than any other insect or animal upon which I have experimented. I have, on many occasions, caught them and taken off part of their extended abdomen or ovipositor and let them go again. They will immediately fly back to the horse and still attempt to lay their eggs—you may repeat this process until nearly the whole of the abdomen is cut away, and the result will be the same, the fly acting as though it had received no injury.

There is another species of œstrus, which is somewhat smaller than the one we have just mentioned. This always lays its eggs on the lower jaw of the horse. This species is much the most annoying to horses, and seems to inspire them universally with terror. Of this the fly is perfectly aware, and has always to resort to stratagem and cunning to succeed in depositing its eggs. To do this, they always get behind the horse in the first instance, then stealthily flying under his belly they

poise themselves to take aim, then dart like lightning, up between the fore-legs, or close around them, striking the lower jaw, where they each time deposit an egg, and fly back and repeat the operation. The general opinion seems to be that the great terror the horses evince for this insect, is from an instinctive knowledge that it is an enemy ultimately to prove dangerous to his being. But we apprehend this is a mistake, for the horse exhibits no fear at all for the œstrus equi, the progeny of which is equally as dangerous as the other. The fear originates from the stroke of the fly, and the hum of its wings, which is very similar to that of the yellow-jacket and bee, of which all horses are afraid. The other species make scarcely any noise at all with its wings, and I have never seen a horse manifest the least uneasiness from their presence. The worms produced by the smaller species are called red bots.

The young of both, whilst remaining in the horse's stomach, live by sucking the juices from the mucus coat.

We can conceive of no means to prevent the horse becoming infested with these parasites, except by keeping them in stalls during the latter part of the summer and fall, and this plan, which is likely to render the horse useless, is not likely to be adopted.

Granting then, that they cannot be prevented, it will be necessary to inquire whether they are injurious or otherwise—and if injurious, to point out the remedies most likely to expel them. We are of the opinion that bots very rarely, if *ever*, prove injurious.

It is a well known fact, that thousands of horses are greatly infested with these insects, and at the same time remain perfectly healthy.

It is believed to be a fact, that they always attach themselves to the upper portion of the stomach, which is nearly insensible, and in this position, as a matter of course, they produce no pain.

We cannot conceive of their becoming painful or dangerous, unless it should happen that a quantity should simultaneously detach themselves sufficient to block up the lower orifice of the stomach or intestines producing symptoms of colic. This we admit to be possible, but not very likely. It has been said that they perforate the whole coat of the stomach, and produce death in that way. This is not likely, for if it be necessary for the support and growth of one set of bots to eat their way through the stomach, it seems to us that all should do so before they came to maturity—if a few should eat their way through, the wound would produce no injury, for while the worm remains its head will fill the orifice—and the head being so extremely small, nothing likely to do injury, can pass the opening when it detaches itself. And again, from the manner in which they suspend themselves, by two small hooks on each side of an extremely small head and mouth, with a body of considerable size, and no legs, we are at a loss to conceive how they could bore a hole through the stomach if so disposed. There is always a good reason for the instinctive habits of inferior animals, but we are at a loss for a reason why these animals should perforate the stomach, when such an act would not only place them beyond the reach of their usual food, but it would actually endanger their lives.

Entertaining this theory in relation to bots, it follows that the symptoms usually attributed to them are, in our opinion, due to colic, and should be treated as such.

We admit that colic *may* be produced by bots, and in this event, we know of nothing so likely to give relief as an active cathartic.

From the fact that bots confine themselves to the upper portions of the stomach at a distance from the digestive apparatus, medicine cannot be made to reach them except as it passes by them to the lower portion of the paunch, besides their small hooks are completely imbedded in the mucus coat, and as a matter of course, they are not likely to pull them out for the purpose of *taking physic*—and their skins are so tough that they will live fifteen minutes in pure spirits of turpentine, and *four* minutes in aquaforis.

Dr. Grimmel, of Fort Des Moines, Iowa, says that a strong tea made of green elder bark, has more effect upon them than anything he has ever tried. He says, "the moment it surrounds them, you can hardly recognise them to be bots." His remedy is, "half a pint of warm sweet milk, just drawn from the cow, and half a pint of molasses. In fifteen minutes after, a strong tea made of elder bark and sage, to which is added half an ounce of alum." This is given as a drench. In half an hour after, he gives the horse a portion of physic.

He adds, "I have had a number of horses attacked with bots during the last twelve years, and have never known this remedy to fail."

We give this recipe for the benefit of such as believe in giving medicine for the destruction of bots—and such as may have *faith* to believe that elder bark tea will kill an animal whose vital powers have sufficient force to successfully resist the destructive properties of nitric acid for the space of four minutes, and pure spirits of turpentine for the space of fifteen minutes.

ADDRESS

Delivered before the Agricultural Society of Ripley county, September 20, 1855.

BY S. S. HARDING, ESQ.

The appropriate sphere of man is labor. Nothing but labor is calculated to develop and perfect his moral and physical nature. Hence the declaration that went forth against man, "In the sweat of thy face shalt thou eat bread until thou return again into the ground," was not a malediction, but a command, frought with infinite wisdom and goodness. Far better indeed, that the earth is filled with "briers and thorns," than that man should roam over its surface with no labor for his hands, but to pluck the ripened fruit, already prepared for the supplying of his animal wants. If there were no seed time and harvest, no summer's heat nor winter's cold, but one pereniel summer prevailed over the whole earth, man everywhere would have remained a mere animal, whose chief end of life would not be "to

glorify God," by rendering Him obedience, in the cultivation of his higher faculties; for no necessity would exist, to call forth the energies of his nature, and the highest type of the race might be found in the nomades of the tropics. Were it not for the changing seasons, man would be almost free from varying wants. A spreading tree, or at most a hut, would have supplied him with ample shelter; and in the absence of positive want, the marvelous skill of the builder would never have been called forth, that enables him to rear the column, the architrave and the dome of the majestic temple, that has defied the storms of a thousand years, gathering around its cloud-capped summit, the solemnity and awe of a nation's faith, and still wooing with its grandeur the presence of the very gods.

In the primitive history of our race, we find man little more than a naked savage; yet he was endowed by his Creator, with the divine attribute of reason; that enabled him to compare facts, and to educe certain results from his premises. Thus, he must have known from the earliest period, that water would quench fire; that fire would go out unless supplied with fuel; that all matter required a motor to give it motion, and that no matter possessed independent enate mobility. And, however, he might not have been able to give the true reason, yet he knew as well as Sir Isaac Newton did in after ages, that a ponderous body thrown into the air would fall to the earth in a straight line, as soon as the projectile force ceased to act upon it. Thus in every stage of his barbarism, we find him to a certain extent a philosopher; and in the simple elements, equal to those who have stamped their genius on the institutions of the world. He must have known also, from a very early period, the power in the common wedge and handspike, the most simple and primitive of all levers. And he has continued from generation to generation, to improve upon them, by a rare combination of mechanical skill, until he is able to multiply a given power, to an almost indefinite extent. Man, in his normal ignorance, was capable of reasoning from cause to effect. He looked abroad upon the earth, and intuitively seized upon it, as its sole monarch. From sea, and earth, and air, he gathered his ideas, as his wants increased. He found in aquatic birds, the first models of his galleys; and their mode of propulsion through the water, and against winds and currents, by the motion of their oarlike feet. In the little Nautillus, he saw the model of a sail boat; and he improved upon the idea of speed, by the studying the physiological formation of fishes, their length and breadth, as well as the cut of their fins. He did not confine his observations to the denizens of the sea and rivers only, but he gathered useful facts and deductions, from contrasting the wing of the swallow, the falcon, the carrier-pigeon, the alabatros and the eagle, with those of birds of lesser speed. In physical strength and fleetness, man was far from being the equal of almost all of the larger class of animals; yet his reasoning faculties, more than supplied the lack of these; and he caught in their flight, the swift footed horse, the camel and the lama. He tamed the wild ox, and made him the partner of his toil. He laid his hand upon the giant elephant, and lead him captive at his will. With the tones of his voice, and the glance of his eye, he subdued the savage sagacity that aspires to the name of reason. He made him his landship, and freighted him with his household and the implements of aggressive war. He looked into the fiery eyeballs of the tiger, and down the cavernous throat of the forest king, and they quailed before the omnipotent power, that lies hidden in the human soul!

He was ignorant of the philosophy of winds, rain, snow, hail, thunder and lightning; the eclipses of the sun and moon, and his religious nature prostrated itself in awe before the unknown power, and he worshipped it as a god. He knew of no division of time. but the darkness and the light, the evening and the morning; seconds, minutes, hours, days, weeks, months and years, are of comparative modern invention. The first objects in physical nature that met his gaze, were the earth beneath his feet, and the vault of heaven above his head. These were the first to force themselves upon his observation and invite him to contemplation. "The earth and the sky, elements so different in their nature, yet indissolubly connected by the mysterious mandate of almighty power, indicated to his perception, and foreshadowed to his reason, the condition of his own existence, composed of soul and body, of matter and mind. The earth ministers to each, and all of our senses. We see, hear, taste, inhale and smell of earth and its productions, adapted to our subsistence and our necessities of life on earth. Man soon discovered, that distant as the great luminary of heaven might be from the earth, yet the earth could not exist without its generative beams, "and the heavens declare the glory of God, and the firmament sheweth forth his handy works." Among the earliest wants of his life, were the standards for the division of time. In the revolution of the earth around her axis, he found the division of day and night. In her revolution, in her orbit around the sun, he found the succession of years; and in the phases of the moon around herself, the measure of the month."

Thus, were the germs of astronomical science planted in his mind. Thus the vast stores of useful knowledge, that have raised man from utter helplessness in his normal ignorance, until he stands in sublime proximity to the source of all wisdom, have been gathered piecemeal by piecemeal. Here in the school of nature, man took his first lesson. Here are the legitimate fruits of his divine nature ever struggling upward in obedience to the "divinity that stirs within him." And we behold man to day standing upon a giddy height, scanning with daring vision the mysteries of the heavens, wrestling with Jove himself for the very mastery of his thunderbolts, and almost with impious hand, drawing aside the vell, that hides from mortal gaze, the secret counsels of the great Eternal!

Herein man differs from all other animals. In the arts of modern animals, we find only those of their earliest representatives. The beaver builds his dam to-day in the wilds of Oregon. without the least improvement, as he did in the earliest history of the world. He understands no more or less, of hydrodynamics now, than did his remotest ancestor; and he will ever remain the same dull, yet curious philosopher. The swallow builds beneath our rafters, as she did in the lost cities of the Nile, or beneath the cornice of the Colliseum. The eagle, builds her eyrie, whether on the Alps or the Alleghanies, as she did in the clefts of Horeb or Sinai, before the Decalogue was uttered. The little bee, builds her cells in your improved hives as she did in the carcass of the lion, slain by the son of Manoah. And the woodpecker, with his natural mallet and chisel, chips out his habitation in the trees of our own forests, precisely as he did in those of primitive Eden, when for the first time, from some hollow limb he rattled his music to the rising sun.

But not so with man; he is either the child of progress or of retrogression, whose destiny in either event is the result of certain laws of his being as fixed and eternal, as the throne of God. If he be obedient to his divine impulses, his

movement will be onward and upward, until he may well exclaim, "man was created litte lower than the angels." If on the other hand he be disobedient to that monition that is ever speaking to his soul, his course will be downward, until he reaches a point below that occupied by the beasts that perish. There has not existed upon the earth a human being, but who has been the subject of this inexorible law. It applies at all times, and place, to the highest as well as the lowest type of our race. If his proposition be true, what a mass of facts present themselves to the enquiring mind, demanding the most careful analysis.

The civilization of man, has ever gone hand in hand, with his knowledge of agriculture, and the laws which govern the earth, in the production of the great staples of life, upon which he subsists. Hence, the principles involved in this most useful branch of human knowledge, are the most vital that concern individuals or governments. They form indeed the basis of all possible improvements, and of the highest hopes of mankind. They are questions, which concern the whole human race, and to the careful and rigid investigation of which, no one should refuse to lend a listening ear. It has been truly said by a writer of great ability, on political economy, that "the governmental policy which results in the impoverishing of the natural fertility of the soil, no matter by what popular name it is called, must have an end. It is only a question of time, when this prodigal course, this abuse of the goodness of Providence, shall meet its inevitable punishment."

Broken and imperfect indeed, Mr. President, as the history of our race is, yet enough has been saved from the wreck of the past to demonstrate the general truth of this proposition. Bright and effulgent as the sun of science beams upon the world, yet this is not the first time the earth has been lit up with effulgence. But the starless night of barbarism has again and again returned, and we roam amidst the ruins of a once mighty civilization, mute and awestruck, in the contemplation of the grandeur of a people whose very name and existence are but a myth.

What connection there is between the downfall of ancient governments, and their system of agriculture connected with their government policy, is a question of the gravest inquiry. We, as a nation, should be the last to disregard the facts, which stand out on every page of the world's history, as so many beacons, warning us of the dangers which lie concealed from the view of the superficial observer, and upon which, in an especial manner, every government claiming to be a republic has shipwrecked and perished.

The reason why all parts of the earth are not equally productive, aside from the difference in climate, is owing wholly to the chemical properties which obtain in the soil, and their adaptation to the growth and life of plants. The peculiar work of the scientific farmer is to understand this difference, and the proper remedies to be applied, in order to correct any natural deficiency, or to maintain a proper equilibrium.

Every human being, who eats bread or wears clothes, has a direct interest in the results of the tillage of the soil, and in farm economy in general. "Hunger and nakedness are wants of the most urgent character, and the Creator of all things has placed them alike in every human being." All are equally dependent on successful agriculture for the means of happiness. Let the soil become permanently exhausted, or far less, let a famine prevail over the land but a single year, and the

heart shrinks from contemplating the scenes that would inevitably follow so great a calamity.

Hence, it is true, Mr. President, that the questions involved in the cultivation of the earth, and agriculture in general, are of the most vital interest. They come home, indeed, much nearer to us than the mere question of the *form* of any government. Among the most important considerations with the farmer, are the various modes of preparing his fields in their annual tillage, and the most economical fertilizers to be applied to them, so that no exhaustion of the soil shall take place, and barrenness follow.

All of the various crops of grain, grasses, roots, and other products, draw on the natural fertility of the soil; and the great desideratum to be obtained, is the supplying of the properties of the soil thus taken up, as we gather in our annual harvests. This is only practicable by observing a system of rotation of crops, and the common principles of justice that should enter into all the affairs of men. "Always taking and never giving," may suit the notions of the mere *money driver*, but it is not in accordance with the views of him whose moral nature has ever been awakened to the manifest injustice and meanness of the rule. He who believes that the richness of his fields, however abundant, will continue for any considerable number of years to *give* without any return for their annual bounties, is living in ignorance of the very law of his being, and, ere long, will be most likely to find his mistake in the constant decrease of the dimensions of his mows, and stacks, and the unoccupied space in his cribs and graneries.

The durability and continued fertility of a field are governed to a great extent by its peculiar texture and composition, as well as by its hygrometric properties. The larger the return in the way of a bountiful harvest, the sooner will the soil be exhausted, unless its fructifying properties are maintained without being sensibly impaired.

No matter with what skill and science the husbandman extracts immense crops, his seeming mine of inexhaustible wealth will soon prove fallacious, unless he returns to the earth, in some organized form, the magnesia, potash, chlorine, sulphur, organized nitrogen, soluble flint, and phosphorus, which he is annually taking from his fields. And notwithstanding many of these properties are being constantly supplied, and evolved by the operation of the laws of nature around us, in the properties of the air, the falling rain, snow, and ice, and in the properties of light and heat, yet the quantity is altogether inadequate to supply the deficiency. The deeper, also, the land is plowed, and the more thoroughly cultivated, and the produce entirely removed, the sooner will such land be impoverished, and, in process of time, become a barren waste. How important then to us, and the generations that follow, that the cultivators of the earth should well understand the laws by which our fields are governed in their annual tillage; the observance of which are the only terms upon which we have a right to hope for success in our business of life.

Is it not true, Mr. President, that the same causes which, in process of time, have desolated the fairest portions of the earth, are silently yet surely at work in our midst? Sir, a few facts evolved in our own times will demonstrate the truth of this proposition.

From a valuable paper, published under the patronage of the General Government, by direction of the Commissioner of Patents, and to which I am indebted for many useful suggestions, it is estimated that there is at this time, in the United States, about one hundred and seventy-five millions of acres of land under cultivation. Four fifths of this vast domain, or one hundred and fifty-five millions of acres, are under a system of culture which constantly deteriorates its value at least ten cents per acre each year. This deterioration, in many districts, is even greater than this. The wheat lands in many of the old States, that produced thirty, and even forty bushels to the acre, three quarters of a century since, do not produce more than five to seven bushels now.

In some of the planting States, where the labor is performed mostly by slaves, the process of exhaustion has been carried on to even a still greater extent. If this assumption be not true, tell me, Mr. President, why it is that we meet in our travels the unmistakable evidences that some great calamity has befallen the land—that we see districts of country, once rich in all the agricultural products, with stately mansions and capacious barns, long since abandoned to encroaching desolation.

Orchards, once loaded with delicious fruits, now without even the sign of ever having been inclosed; pealed and blasted trees, standing in specter groups, holding aloft their skeleton arms, as if in solemn protest against the system of agriculture that has wrought this fearful desolation. Sir, the fact is branded on the blasted earth and barren fields. Man has forgotten the law of his being, and defied the mandate of the Almighty. "In the sweat of thy face shalt thou eat bread," is a command of the Most High. Sir, the very earth cries out against the violated laws of its tillage; and like a shrewd banker refuses the bills of worthless and ignorant drawers upon her locked up wealth, or receives them at a most ruinous discount.

And here let me remark, that the greatest improvement that is needed at this time in our system of agriculture, is the improvement of the farmer himself. He, of all other men, should be able to read and understand the laws of nature, as they exist in the mineral, animal, and vegetable kingdoms. And pray, sir, why should he not understand those laws, a knowledge of which is so conducive to his success in life? His occupation is amongst the most intellectual and honorable, and there does not exist one good reason why the American farmer, who is emphatically the lord of his own broad acres, and a sovereign before the law, should not be the most thoroughly educated business man in the community.

But in order to become this, he must not only possess a knowledge of books; he must not only bear about him the scent of the midnight lamp; but he must smell of the fresh earth itself. In other words, he must learn to *labor* with his own hands. He must inculcate into the minds of his sons and daughters that the most respectable acquirements are those which are the most useful to ourselves and to our fellow men. He must teach his sons that a governmental policy that stamps *labor* with dishonor, whether in the encouragement and extension of slavery, or other system of compulsory labor, is a false emanation of the sovereign power of the State, and, unless speedily corrected, will work out the same problem in American politics that it has in other countries, viz: that to degrade labor is to

stab the liberties of the citizen, and to destroy his highest earthly hopes in the pursuit of happiness.

But the task that presents itself in the correction of this evil seems indeed herculean. No sensible impression in this direction seems possible, until there shall be a more general intelligence diffused among the laboring classes, and in an especial manner among farmers themselves.

I am sorry, Mr. President, to have to say that a doctrine prevails in many parts of this great confederacy, that is not very well calculated in its tendency to bring about or hasten so desirable a change. And yet it is true that the great mass of agricultural laborers in this country, and more particularly in the planting States, are as ignorant of the properties of the field they till, as the ox that breaks the sod, or the horse that plows the furrow.

I do not say this from any disposition on my part to disparage the laborer. No, far from it; but to arouse the minds of our people to this most vital and important of all questions. And if I would have one sentiment that I shall have uttered here to day, longer remembered than another, it is this, that *labor* cannot be degraded without a corresponding degradation of the *laborer himself*. That when the belief shall become universal in the minds of the people that *labor* is dishonorable, that the State or government that encourages such an idea in her governmental policy, "no matter by what popular name it may be called," has already reached its culmination, and must speedily fall before the wrath of God, as manifested in the violated laws of man's moral nature, or before the indignation of the people, as surely as the proud bird of Jove falls to the earth, when arrested in his mid-heaven flight, by the bolt of death!

Then mark the man who would brand *labor* with dishonor. Mark him as an enemy of the State and Commonwealth. Let treason be branded on his brow and felon on his cheek; for he is undermining the government itself, and by precept and example instilling crime in the minds of his deluded followers. These mischievous results are already manifesting themselves in the prejudice that even the farmer himself feels in many instances against his own profession.

Mr. President, the whole secret lies in the fact, that *labor* is looked upon as being incompatible with the highest social position. Sir, if this be not so, tell me why it is that we talk of educating our sons and daughters for almost all other positions in life but that of the farmer and farmer's wife—positions which God and nature point out as the most honorable, because the most useful.

Yet, in the face of these facts, we see doating fathers, who are farmers themselves, parting with their last hard earned dollar, that their sons may graduate as masters of art or doctors of divinity, when it is a thousand times of more importance to the world that they should become masters of agriculture, and understand the laws which govern the tillage of the earth and its productions, than that they should be able to read in Latin the Commentaries of Cæsar, or the Georgics of Virgil; or be able to reason with subtilty upon some abstract question of theology. Let me be clearly understood—I would not underrate the importance of a collegiate education, even with all of its present glaring defects; but the fact remains, there is something associated with *labor* that is looked upon as dishonorable; and the young gentleman that leaves college with a diploma that is a myth to his homespun friends, will actually boast that he does not know how to plant a hill of

potatoes, nor to which end of his father's cart the oxen are to be hitched. We are all anxious to make our sons lawyers, doctors, clergymen, indeed almost anything but farmers. Many a young lady, who has spent "pa's" money at a boarding school, and who can sing and play in the "latest style," "wait for the wagon," would much sooner marry a dancing master than the honest and home-spun "Jacob," of whom she sings. Sir, the reason of all this is not to be blinked at or passed by without a proper notice. It is because *labor* has been stamped with dishonor, and the present state of society is the inevitable result.

This condition of things, Mr. President, however much to be regretted, must continue until the laboring classes themselves, more fully appreciate the important position they occupy, as the source of all wealth and power to the State. I congratulate you, Mr. President, and the country at large, that the public mind is being aroused to the importance of the subject. I congratulate you that not only the laboring classes of this country, but of all other countries, are beginning to understand that they are MEN, that the State was made for *their* use, and not *they* for the use of the State.

That the great central truth which lies at the foundation our government, and which, like the down trodden but immortal soul, is now struggling upward in the hearts of men, "we hold these truths to be self evident, that all men are created equal, that they are endowed by their Creator with certain inalienable rights, amongst which are life, liberty, and the pursuit of happiness," is ringing throughout the nations, like a blast from a war bugle, arousing the millions to a sense of their God given rights.

I hope and trust, that the laboring man of this country will see to it, that no violence shall be done to this great principle; on the sacred preservation of which, depend the hopes of the friends of liberty throughout the world. It should be to him as the "*Urim* and *Thummim*" to the ancient Israelite, and wo, wo to him, who shall lay his sacriligious hand upon this ark of our covenant with the God of our fathers.

I rejoice, sir, that the importance of a thorough agricultural education is acknowledged by the law making powers of the State, that this great interest is being encouraged by a liberal policy in the formation of societies and institutions organized for the advancement of our common happiness. We behold on every hand to-day, the evidences of this awakened zeal in the public mind; yes, sir, this magnificent display of the bounties of nature — these mutual congratulations of our fellow citizens — the hope and joy that beam in their countenances, as they contemplate these offerings, heaped in profusion on these altars of peace, the luxuries of life, with which your wives and daughters have made these very tables to groan; and which would tempt the most inveterate recluse to break his vow of fast and abstinence, these rich and tasteful evidences of domestic thrift and refinement that embellish your own happy homes; and to which you may proudly point as samples that abound there.

This grand display of improved domestic animals, the labor saving, and labor ennobling machines with which the country abounds, and which in their adaption seem so many "mechanical intelligences," and as the Emperor of the French recently remarked, "fill the mind with awe." All these, let me repeat, are but the earnest that this overshadowing interest is receiving, and is destined to receive at

the hands of the government itself, that regard which its importance demands. And, Mr. President, let me say that I can but hope that the educational interests connected with this subject will in an especial manner meet with their due share of attention, and we may live to see the time when "Master of Agriculture" shall be one of the most honorable degrees known in our institutions of learning, and that it will be conferred on our young men who shall be found worthy of so great an honor, with all the pomp and solemnity, which accompany the conferring of other degrees in our colleges; and to this end, that in all our institutions of learning a distinct chair, on the science of agriculture shall be erected with the most liberal compensation to the able citizen, who is capable of filling the same with honor to himself and to the country. That agricultural meteorology, chemistry, with a view of its application to the cultivation of the earth, zoology, entomology, as well as all other subjects which evolve new light in agricultural science, may be taught in all of our schools. When this shall be the case, *labor* will cease to be looked upon as dishonorable, and not till then.

There is, Mr. President, another subject, intimately connected with our agricultural interest, that I will allude to for a moment only. I mean the annual wastings of the soil, as the earth is brought under cultivation, and the vegetable outwork of surface is removed by the plow-share. This annual waste of soil-earth is immense, and of great consideration, as many of you can well assert from sad experience; and particularly you who would cultivate broken or hilly land.

In mountaneous countries, such for instance as Switzerland, this evil is remedied to a great extent, by placing obstructions on the sides of the hills or mountains, where the fertility of the soil induces cultivation. This is the more easily done, when nature has supplied the ready materials in the loose rock that have been laid bare. These materials, however, are not always at hand, and we are forced to see the process grow year after year, silently, but as surely as fate itself: These wastings, "pass off in a thousand different channels, and are deposited in the rivers, and finally, in the ocean itself. I am aware, sir, that not one particle of all this matter is lost, for in process of time it may be evolved in new islands, and for aught I know, in new continents. But nevertheless, it is absolutely lost to us, and our deeds of "general warranty," avail us nothing.

What connection there is between the wastings of the great rivers of the earth, and the ultimate impoverishing of the soil, is a question full of interest, not only to the geologist, but to every person of an inquiring mind.

Ancient Egypt, perhaps, has witnessed the most remarkable change in the fertility of her soil, than any other country on the face of the earth. With an area of tillable land, not so large by one-third as the State of Virginia, yet by her system of cultivation, embracing almost every possible mode of irrigation, and by reason of the wonderful fertility of her soil, she supported in the days of Rameses, a population of twenty-five millions; besides a standing army of four hundred thousand men. She was the great emporium of corn to the surrounding nations, and dispersed her civilization, not only from the Red Sea on the east, to the Mediterranean on the north; throughout Numidia and Abyssinia on the south, and far into the interior of Africa on the west, but throughout all the eastern Asia. She was the birth-place of the sciences that civilized, and the arts that adorned the ancient cities of Greece and Rome; and, even now, modern nations are contending for

mere fragments of the sublime and glorious monuments with which to adorn their cities.

Yet desolation has come upon her. She is the Niobe of nations, the astonished traveler roams over thousands of square leagues of barren wastes, that seem to have been smitten by some avenging Nemesis, as if the sins of a world had been atoned in her desolation. He meets on every hand, evidences of a once mighty civilization, so grand and imposing in its structure, that he stands mute and awe struck before the vision that rises to enchant him. Yet these "cities of the dead," have awakened no echoes of life for thousands of years, nor their deserted courts resounded to the shout of merryment, the song of the maiden, "the sacbut, the harp, or the timbrel." Time has left no traces of her former greatness, other than her own imperishable monuments.

Her institutions and government, may have passed away from their own inherent weakness, or, her system of labor may have been founded in such gigantic wrong, that no government could stand beneath the load of guilt. But still the question returns, and remains unanswered. Why has her very soil disappeared? Why has ancient Egypt shrunk to what modern Egypt is? Why has the great desert extended its scorching sands over thousands of square miles, once yellow with as rich a harvest as ever gladdened the heart of man?

Her great river rolls its turbid waters to the sea. From age to age has her rich delta been disappearing, before the desolation that is embracing it with its fiery arms. From the far off mountains of Abyssinia and Numidia, to the very shores of the Mediteranean, there has been borne in its irresistable flood, the rich alluvium of all eastern and central Africa. Men of great practical knowledge of the subject, have estimated that the waters of the Nile, deposit into the sea, fifteen millions cubic feet of soil earth each hour! It is, as if the very life blood of the living body was being drained.

I leave you, Mr. President, to draw your own conclusions from my premises, whether or no this phenomenon is connected immediately or remotely with the desolation of Egypt, I leave abler minds to determine. In some respects our own "Father of Waters" resembles the Nile. By the same scientific calculation, the Mississippi deposits in the Gulf of Mexico, eight hundred thousand cubic feet of soil earth each hour; and the sacred river of the Hindoos deposits in the Bay of Bengal, two millions and a half of the same material in the same given time. What ultimate effect these wastings will have ages to come, on the destiny of our continent, and more particularly on the regions of country adjacent to our great river and its tributaries, I shall not venture to give an opinion. But I find, Mr. President, that I have already exceeded the limits of my time; that my subject is inexhaustable, and is increasing in my hands. I must therefore content myself with what has already been said. And in conclusion, let me say, that I hope that not one of us will return from these grounds, without feeling that we have been mutually benefitted: pledging our vows anew on the altar of our country, that the great interests which it has been our object to promote, shall not suffer at our hands, at any future period, for the want of our support and hearty co-operation. And that year after year, as the farmer gathers in his rich harvest, he will find that by a proper system of tillage, the wealth of his soil is not being impoverished, but that it is constantly improving, in consequence of the application of new facts which have been evolved in the science of agriculture.

ADDRESS

Delivered before the Vanderburgh County Agricultural and Horticultural Society, October 13, 1855.

BY JAMES HARLAND, JR.

I have been assigned a very difficult part in the interesting exercises of this day —difficult at least, and hazardous, for one who has so little personal acquaintance with agriculture as myself—for one whose fortune it was to have lived all his life in a city, and whose habits of thought and study and daily occupation are so different from the subjects which engage the attention of the members of the Agricultural and Horticultural Society. I have been called, by the choice of others, to deliver the Introductory Address before the members of this Association, very many of whom are my seniors in age and my superiors in practical experience, and in a knowledge of every subject that properly comes within the range of an agricultural society. And this conspicuous position taken in connection with very imperfect preparation from want of time and a conscious unfitness for the duty imposed upon me, fills me with great embarrassment.

Nevertheless, my friends, this is an enterprise in which we are all interested; for its success will contribute to the prosperity of our city and county; and besides so highly do I prize the honor of making the first annual address before the Vanderburgh County Agricultural and Horticultural Society, that I could not but yield to the flattering invitation of your committee. I am anxious, yes, rejoice to have an opportunity of contributing, in my own feeble and imperfect manner, an humble mite in the advancement of an enterprise so closely connected with the prosperity and most valuable interests of this portion of our State—an enterprise for the promotion and improvement of that branch of labor and industry, which, in the estimation of such men as George Washington, tends, more than all other things, to the wealth and prosperity of a country. And every one, in addition to motives resulting from the important personal interests involved, must feel it to be their duty to bring to this, as well as all other great movements affecting the public good, a portion of his zeal and patriotism.

Allow me, in the first place, to give expression to the lively feelings of pleasure and gratification I experience, at seeing the substantial men of our community, moving in this great industrial enterprise—evincing a commendable jealousy for the good name of Vanderburgh county. This is the first public fair in the history of our county; and though small and unpretending, when compared with the efforts of older associations, is yet indicative of the existence in our midst of a proper spirit of public enterprise—giving a gratifying assurance of a more perfect and satisfactory success in future. It proves that our farmers—intelligent and industrious as any upon the face of the earth, and blessed with as many privileges —are fully alive to the vast movements going on throughout the entire land, for the promotion and advancement of the agricultural and mechanical interests. A

spirit of enterprise and generous rivalry is spreading throughout the agricultural and mechanical classes; and if this spirit is properly developed and kept alive, who can estimate its glorious results?

On the last Saturday of May, 1835, some twenty gentlemen, citizens of this county, met for the purpose of forming an agricultural society, and without much delay effected an organization. This organization has been in existence, in name at least, until the present time, although the larger portion of the members have passed away. Death has removed eleven of this small number—some have removed to different parts of our country, and perhaps, in their new homes, are using the same spirit of enterprise which induced them to form this society, to advance and promote the public good, while but five remain in this county, and are now, with a zeal worthy of the highest praise, deeply enlisted in the present organization.

Some time during the present year, the Horticultural Society was organized; and those who have been immediately connected with its operations, can testify to its beneficial results. Regular monthly meetings have been held and attended with much interest. Fruits and the products of the garden and of the floral department, have been exhibited with great success, and movements set on foot for the promotion and encouragement of essential branches. On the fourth Saturday in last September, the two societies held a joint meeting, and after a full consideration of the matter, believing the more good could be accomplished by a union of labor and influence, consolidated under the name and style of the Vanderburgh County Agricultural and Horticultural Society, and to-day have invited the public to their first annual fair.

And I have on this interesting occasion, the proud gratification of congratulating the citizens of Evansville and Vanderburgh county, upon the existence of such an association in their midst. It is impossible to predict what beneficial results may follow from the formation of such societies. The small number of gentlemen, who met together in some college at Oxford for mutual improvement, could never have dreamed, that the Royal Society for promoting natural knowedge, chartered by Charles II, would grow out of their meetings, and that a volume of its transactions for the benefit of mankind would be published annually ever since; or that a king of France, roused by jealousy for the literary and scientific characacter of his country, in consequence of the fact, that the learned and scientific men of his own kingdom and of all Europe were depositing in the archives of the Royal Society of London the records of their achievements, should charter the Academy of Sciences at Paris six years afterwards. These societies, whose influence is now felt by every intelligent mind in the world, had their beginning, as insignificant and unpromising as the first organization of this association.

Heretofore the subject of agriculture, confessedly the most important interest of a nation, had been too much neglected—in fact has not received that attention it deserved, and which was necessary to successfully develop the resources of our country. Until recently our State government did very little for it. Legislators could find time and inducements for promoting and for protecting every other employment and occupation of the people. Even with the farmers, it was in a state of comparative neglect. A spirit of emulation and a desire for improvement seemed to be wanting, and the consequence was, that they reared their stock,

plowed their lands, and sowed their grain in the old fashioned way, regardless of the teachings of experience, and ignorant of the thousand improvements and discoveries constantly being made in every branch of industry. But a change has come over the entire country. Errors in every department of agriculture, to which the farmer has been wedded all his life, under the influence of the enlightened spirit and increased knowledge of the present day, are fast being corrected.

The organization of this Society, and the anticipation of this public exhibition, has awakened a new spirit among the farmers and mechanics of Vanderburgh county. And with the gratifying evidence before our eyes, of so much success in this our first effort, made under such unfavorable circumstances, what may we not expect in future from such exhibitions. Much of value and profit will result even from these annual fairs—these farmers' festivals, as they have been appropriately styled. No one, indeed, can doubt, that for spreading information, for exciting and directing inquiry, for encouraging experiments, for stimulating emulation, and for exhibiting the practical and beneficial results of them all, such occasions furnish means and opportunities which could be supplied in no other way. The farmers, we are led to believe, from this and other indications, begin to regard agriculture as one of the most useful and ennobling pursuits of life.

A spirit of inquiry and searching investigation has been awakened and every one seems willing and anxious to profit by the experience and knowledge of those who have been more successful. Agriculture is no longer satisfied with mere labor and strength, but is ranked as a practical science, worthy of the profoundest study, capable of the fullest development, and filled with useful and interesting truths which are ever open to those who give the subject the attention and consideration its dignity and value so justly merit. Books on agriculture, filled with the teachings of an enlarged and enlightened experience, and illustrating every branch of the subject, are sought after and read by the intelligent farmers, while the frequent perusal of newspapers and periodicals add constantly much that is valuable to his stock of useful knowledge, and gives a renewed energy and impetus to the laudable spirit already aroused. The signs of the times, indicating a general movement of the public mind, are truly gratifying to us all, and afford the strongest assurance, that henceforth this subject will receive an increased attention from the farmers, and arouse in them a spirit of energy and investigation as to the best possible manner of developing all the resources of this honorable pursuit, until in truth and reality the earth shall blossom as the rose.

I consider the formation of this agricultural association as a step onward towards the attainment of immense good to every class and interest in our community. You, gentlemen, of the association, have come to a true sense of the dignity and power of your calling. You are throwing off that state of indifference which has so long held back your pursuit in the march of improvement, and are nobly aiming to place Vanderburgh county upon an elevated position, along side with other counties in this and other States. And the enterprise in which you are engaged, is but the natural and necessary result of that enlightened and active spirit of progress—vigorous, healthful progress—which is pervading this entire country and drawing the attention of the people to the numberless improvements in mechanics, agriculture and science. Every branch of business, every interest and every class are feeling the invigorating influence of this spirit of improvement. Enterprises

of great moment for the amelioration of the condition of mankind—improvements in the useful arts, new and important discoveries in the arts and sciences are constantly going on—institutions and all kinds of means are brought into operation, to scatter throughout society, knowledge upon all useful subjects, scientific, literary, mechanical and agricultural—all tending to make the mass of mankind happier, more intelligent and virtuous.

And especially, this our great and glorious country, all around us, above us, everywhere, in everything and continually, is filled with a genuine spirit of propress—creating among us and in every class a spirit of honest rivalry—always elevating the aims and aspirations of the masses, and enlarging and expanding beyond all calculation, the wealth, the power, the glory and happiness of the nation. Yes, that bold and enterprising spirit of progress, tempered by a just conservatism, is constantly developing the energies and resources of the country in a manner never dreamed of, even by the most enthusiastic.

It was a vast and dazzling spectacle, commanding the admiration of every lover of his race, when representatives from the uttermost parts of the earth, met in a grand contest at the World's Fair at London a few years ago. We beheld there what never before gladdened the eyes of man, people of every nation and tongue and clime, journeying as pilgrims to the same spot, bearing along with them the symbols of peace and industry, to strive together, not in bloody combat, or for the dismemberment of empires, but in a noble rivalry in the consecrated cause of civilization. And the genius and pride of our own America, aroused to the greatness of the undertaking, emulated our neighbors across the ocean, by engaging in an enterprise of a similar character, which, though a pecuniary sacrifice to the noble men who were connected with it, must yet in all time, be viewed as an honor and a crowning glory to our country. It was no assembling of hostile armies to fill the land with carnage and distress, no mere empty parade to the hero of an hundred battles. No, no, my friends, 'twas a universal jubilee of genius and art and industry—one universal contribution to the peace, prosperity and happiness of the human race—the opening of that era in the world's history, to which we all look forward with ardent joy, when all nations and men shall be united in one universal brotherhood. And even at this day, while hostile armies are marshaling their forces and slaughtering each other by thousands, and the battle fields of the Crimea are red with the life blood of the gallant and the brave, the streets and sidewalks of giddy Paris, are crowded with all sorts and descriptions of people, from every part of the civilized globe—*there* with the triumphs of art and science and industry.

These grand enterprises are engaging the attention of the world, and their influence upon the future world, who can estimate it? Nations will turn from the empty glories of the past and no more war against each other in the deadly conflict of battle. Kings and rulers will no more build up their power upon the ignorance of their subjects, but will turn their attention and the influence of their power to the cultivation of the arts of peace and the development of those things which make up the true and permanent glory of a nation—the happiness, virtue and intelligence of the people. The time is coming—may I not say has already come—when an improvement in any branch of the useful arts, will reflect more honor upon the inventor, than the most remarkable improvement

in the science of war. McCormick's reaper, this day, is far more valuable to any people, than Colt's revolver, or the wonderful Minnie rifle. And did not your hearts swell with pride when reading the recent accounts from the World's Fair at Paris? Our mechanics, a few weeks ago, won a prouder and more glorious victory in the fifty acre meadows of France, than was achieved by the allied armies on the blood stained plains of the Crimea—aye, a prouder and more glorious achievement than the taking of Sebastopol.

I am not here to-day with any presumptuous proffer of information or instruction, nor shall I, upon this occasion, attempt anything like an elaborate lecture on the subject and practice of agriculture. Even if such a course were expected in an introductory address, it would be, in one like myself, sheer presumption to undertake anything of the kind, and especially so, in the presence of so many practical and intelligent farmers, to whom I might fitly be a student in the art. My purpose will be accomplished by calling your attention to the great value and importance of the subject of agriculture—its influence upon the character of individuals and of society—its agency in the promotion and support of manufactories, commerce and every branch of labor and industry—its influence in the development of all those things which render a nation of people happy, virtuous, prosperous and intelligent; and, if possible, by any feeble words of mine, to impress upon your hearts and minds a deeper sense of the real dignity of your pursuit. And I candidly confess my inability to grasp the subject in all of its bearings.

Some one has said that agriculture bears the impress of the Divine signature and authority. The earth, as it came from the hands of its Creator, with all its original beauty and fertilty, was given to man to till and keep it and make it fruitful. With this high commission, man was sent forth to cultivate the earth and engage in the honorable pursuit of agriculture. Everything necessary to his physical comfort and gratification and improvement was placed within his reach. Possessing this mark of divine distinction, and being the first department of industrial labor, it has ever been at the foundation of all progress in society and the great source of national prosperity, improvement and wealth.

A glance at the history of mankind will satisfy us all, that this great department of labor, when viewed in all its various and important features, when considered with reference to its immeasurable influence upon the progress of society and the prosperity and wealth of a nation, is worthy of the profoundest study. It is intimately and inseparably connected with the entire system of political economy. From it civilization takes its rise—out of it flow the streams that enrich life, beautify society, and add wealth and prosperity to a nation. Run back over the history of the past—look at the present condition of all the countries of the world, and you will find that wherever society has had a true and noble civilization, there also has the art of agriculture been cultivated in all its branches, its influences and fruits richly enjoyed, and its power applied to the development of progress, and national wealth and civilization.

Agriculture exerts a marked influence upon the manufacturing and mechanical interests of the country. Without it, these essential and valuable departments of industry could not prosper. Upon commerce, its influence is immense. It gives to commerce, mainly, all its activity, influence and wealth. The whitening sails of our commerce, spreading its wings to the breeze in every sea and upon every ocean

of the globe, can testify how much is due to agriculture. It develops the energies and resources of a nation, in a manner which could not be done by any other agency; it has sustained and strengthened that spirit of enterprise, which has filled the land with vast improvements of every description, spread everywhere all over the country, the monuments of human art and industry, and made cities and villages to thicken upon every plain, and manufactures to rise upon a thousand hills and a thousand valleys.

Agriculture commends itself to the consideration of every one. It is an ancient, honorable and useful pursuit, pre-eminently adapted to the character and genius of our people. It is republican in its character, and simple and virtuous—the school for freemen to teach them how to live with manly independence; and it furnishes all that is essential to render life happy and prosperous. It was at the beginning, as it must always continue to be, at the foundation of all national and individual achievement. Commerce, navigation and manufactures can only move and flourish in unison with it. An ancient writer, in speaking of its adaptation to the purposes of life, has most beautifully described it as "the most common nurse of all ages and conditions of life; as a source of health, plenty, riches, and a thousand sober delights and honest pleasures, as the mistress of sobriety, temperance, justice and religion," and I have often thought, my friends, that of all occupations, the influence of agriculture was most favorable to the development of philosophy and christianity. Its designs being so purely natural and noble, embrace but little calculated to pervert the better qualities of our character. The whole volume of nature, so wonderful in its teachings, is constantly opened before the farmer, inviting him to communion with the purest thoughts and highest aims —to the contemplation of God in nature. The whole process of agriculture, like the machinery of the Universe, testifies to Him of the agency of a Superior power in the line of his daily pursuit, ever reminding him of the goodness, power and wisdom of his Creator. There is nothing in the whole range of the material world that does not reflect our Maker's will or illustrate some principle in the philosophy of nature.

Gentlemen of the Society, I have endeavored, by the tenor of my remarks, to give you some idea of what I believe to be the importance of the subject of agriculture; and may I not hope that you place a sufficiently high estimate upon your occupation. A new era has begun in our country. Everywhere a spirit of public enterprise has appeared, bringing into action all the influences and all the elements essential to a full development of the industrial pursuits of our people. Few things have been more noticeable, and few things, I am sure, more gratifying to us all than the increased interest which has been, of late years, manifested in all parts of the country, and particularly in the State of Indiana, in the honored cause in which you are associated. Efforts have been made—and successfully made, as this day's demonstration proves—to awaken the public mind to a fuller sense of the importance and dignity of agricultural pursuits. The ablest and most accomplished minds, and the most prominent men of influence and wealth, in our State, are devoting themselves to subjects connected with the cultivation of land, the improvement of stock, the scientific analysis of soils and plants, and the propagation and preservation of fruit trees and forest trees. And surely you, who have a larger interest involved and who should, above all others, show a just pride in the

successful prosecution of agriculture, will not fold your arms, and with careless—nay, culpable indifference, take no part in this general movement of the public mind on these subjects. I have a far higher opinion of the character and good sense of the farmers of Vanderburgh, than to think for a moment that they will prove indifferent to their dearest and most valuable interests. I believe that henceforth you will show forth that same spirit of improvement and enterprise, which is manifesting itself, in other parts of the country, not more favored than you. Do so, and my word for it, you will reap, ere long, a golden harvest, and gather in the rich abundance which has fallen to the lot of others.

Finally, gentlemen, I thank you from the bottom of my heart, for giving me the honor of delivering the introductory address before this association. I shall have satisfied myself, yes, shall feel proud if by any word of mine to-day, has been impressed upon your hears and minds, a deeper sense of the dignity and value of your pursuit, and of the vast responsibility resting upon you as citizens of this great country. Much has been confided to you and much will be expected at your hands. Upon you, gentlemen, the tillers of the soil, more than all others, depend the future glory and happiness of our country. Engaged in the calm and honorable pursuit of agriculture, you are, from your character and position, the better able to cultivate those arts and virtues which are essential to the growth and success of our institutions; and being, in a great measure, beyond the influence of party clamor, and prejudice, and passion, and malice, and evil influence of every kind, you must rescue our country from the disastrous influence of that fell spirit of political strife, which is flooding our land and threatening to turn the attention of the people from all that is permanent and desirable in life. It is the farmers that furnish the best, and the largest share of soldiers in time of war, and pay our taxes in times of peace. It was the blood of farmers that dedicated the soil of our country to the cause of liberty, and even now their constant love of country and integrity of character constitute the surest guarantee for the prosperity of the Union.

Prepare yourselves for the proper discharge of the duty you owe to yourselves, your country and your God. Bring the intellect, that god-like attribute which has enabled man to solve the most difficult problems in natural and moral phylosophy, to bear upon agriculture—for without this mighty agency, the successful pursuit of agriculture is not to be expected. Study books on agriculture, read newspapers, gather the experience of the most successful and accomplished farmers, and profit by the knowledge in the management and cultivation of your farms—adopt new and valuable improvements—and the inevitable result will be an increase of wealth, prosperity and happiness. Exhibit to all the world, what industry and energy, and thrift, and temperance, and education, and science can do, in the development of the wealth and resources of our country, so that Vanderburgh may be in agriculture, and in whatever else she undertakes, the model county of our State.

ESSAY UPON AGRICULTURE IN GENERAL.

BY A. B. LINE, ESQ.

Agriculture, taken in the common acceptation of the term, is the cultivation of the earth. In the early history of society, when its wants were few, and those wants supplied by the chase, both as to food and clothing, and, as a consequence, but little was done to cultivate the earth; and when it was done, the mode of culture, as well as the implements, were of the most simple character. But as the population increased, the wants of society appear also to have increased; and the precarious chances of the chase, as well as the more reliable supplies of a pastoral life, appear not to have been sufficient to meet the wants of man Though one of the great princes of the East had 7,000 sheep, 3,000 camels, 500 yoke of oxen, and 500 she asses, and a very great household, yet this no doubt was an exception to wealth in olden times; and it is probable that, for the subsistence of this vast herd, agriculture was carried on to some extent at least. But as population increased, the wants of man appear also to have increased, and thus, acting reciprocally upon each other, led to something like a systematic mode of cultivating the earth.

It is certainly an interesting field for the antiquarian to travel in, to observe, as history developes it, the progress that the different nations of the earth made in the science of agriculture; and we think we are not saying too much when we say that the progress has been onward, down to the present day, and that it will still be onward, until the subject of agriculture shall be raised to as high a point as man, with his limited powers of mind, can push it.

And not only is the subject of the simple manner in which the ancients cultivated the earth, a matter of interest and curiosity, but the simplicity of their implements of husbandry is also a subject to which we may turn, for the purpose of learning how far the arts have been subservient to the progress of agriculture. Compare our finely finished, steel mould board plows, of the present day, with the "primitive" plow described by Captain James Riley, when East, on the sterile lands of the great Sahara desert, and then we may faintly appreciate what the arts have done to promote the science of agriculture.

But a desertation, however long, upon the subject of agriculture in olden times, whether in abstract speculation or in detailing facts, is too cold and uninteresting to satisfy "Young America;" but to treat of the subject of agriculture, as it is in this country at the present day, and make such practical suggestions as shall be adapted to the wants and the wishes of the farmer in this latitude, is what I started out with the intention of doing; and I promise myself, and I think I shall keep that promise, that my remarks shall be not only of a plain but a practical character.

Then we shall commence with the man, whether young or old, who is just going to commence a farm in the forest. Now I know that in the various works of the

farmer just commencing in the forest, it is very difficult to observe strictly any particular rule. But although this may be the case, yet I feel confident that there may be some general rules observed that may lessen his labor and facilitate his business.

Then, for the purpose of lessening your labor in the clearing of your land, make your deadening, girdle or cut down everything except what you want for timber or building purposes, and, if possible, do this in the month of May. I say, girdle or cut down all except your timber; do not leave the small bushes; if you do they will grow with increased facility, by letting the sun in upon them; and endeavor to anticipate, with proper judgment, the amount you can clear each year successively, that your deadening may not get more than three or four years old before you clear them up. This will not only improve the quality of your soil, but obviate that which every farmer, (I will say, hates with a perfect hatred), the plowing of new lands; and my word against the world that there is a saving of from fifty to one hundred per cent. in the clearing.

Your lands being cleared, your next step is the fencing, and this, in all forest lands, is done by the common worm rail, (except that in some cases a brush one is substituted), because it is the cheapest and the easiest made. In the building of your fence, if your rails are ten feet long, the most usual as well as the most suitable length, a four feet worm is sufficient; if eleven feet long, it should be four and a half feet worm, and a good stone or chunk, placed under each corner, will well pay for the trouble of putting it there. And every field or lot should have a pair of bars or a gate—the latter is most convenient, though rather more costly.

And now, that your land has been deadened and cleared up, your fences built, your bars or gate placed, (this of course has all been done with a view to the cultivation, is the only condition upon which the earth will pay you back your principal, with usury), I repeat that, let your crop be of what kind it may, your cultivation should be deep and thorough.

The next subject to which I shall direct the attention of the farmer, is that of the orchard. The time was when it was difficult to get the choicest varieties of fruit; but a little industry and perseverance will now overcome that difficulty. Then, we say, select the very best varieties; set your trees two rods apart, each way, by digging a hole thirty inches square and two feet deep; and I believe that every farmer that has tried it will bear me out in saying, that any given quantity of ground thus set out in the choicest of grafted trees will yield as large a per cent. as the same quantity of ground cultivated in any other kind of a way. And indeed I do not know how the social feelings of a family can be cultivated to that extent without an orchard of choice fruit that it can with.

Imagine the hearth of the domicil surrounded, the bright fire burning, and the little son or daughter passing round the basket, filled with the choicest of fruits; and certainly we have a picture around which the heart and feelings desire to cluster.

The next thing to which I shall call the attention of the farmer is that of the garden; and in making some remarks upon this subject, I know I shall cross the path of some who think that all the arrangement and labor of the garden belongs to the female part of the family. I will admit that a portion of the labor of the garden can be performed by females, and that they are not acting out of their

sphere when thus employed. But pale in your garden, plow or spade it up at the proper time, get your shrubbery and set it out, and your wives and daughters will always be ready and willing to aid in the planting of the seeds and cultivating the same. And none but those who have made careful observation can tell how much that goes to make up the food of the family can be raised in a small garden; and I am constrained to say that there is no one item I would turn to more readily, with a view of ascertaining the taste of the farmer, than the interest he takes in fitting up and furnishing his garden.

Passing from the garden, we shall make some suggestions upon the subject of what is usually called out-buildings; for we take it for granted he has provided his family with as comfortable and convenient a house as his means will enable him to. Now, I am not foolish enough to suppose that the man who has commenced on his farm in the forest, with limited means, can, in two or three years, build himself his 60 by 30 feet bank barn, with shedding all around it, and stables for all his stock. This he may do, and ought to do, as soon as he gets able; for it will abundantly pay in the saving of grain and feed. But what I say is this, the farmer needs and must have some out buildings; and the first usually put up, although they may be a loss, yet he may do a great deal in the way of making them convenient. And I say, that although the buildings may be of logs, they may be as convenient as any frame buildings can be, though they may not present so fine an appearance, nor may not be so durable.

And here I will suggest what I conceive to be a convenient log building, for a stable, cutting room, and corn crib, with considerable mow room besides. Let your sills be twenty-eight feet long and your building eighteen feet wide; take fourteen feet off one end for your stable, eight feet for a cutting room, and then you have six feet for a crip. Put your building up about six feet high; then let three logs run beyond the main building, twelve feet, for a shed; raise your main building fourteen rounds high, which will give you a chance to put four or five logs on your shed, and give you mow room for four tons of hay, one hundred dozen of oats, and a crib that will hold four hundred bushels of corn, and stable room for four horses, besides shedding for eight or ten head of cattle, and all can be fed from your cutting room without passing outside your building.

Now I am well aware that such is the spirit of improvement that, as soon as the farmer gets able, for these log buildings he will substitute frame ones. Having built and finished several barns, with all their appendages, I think I could make some suggestions that would be useful in their arrangement. But the farmer who feels able to build him a frame barn will either consult well his own judgment, or some good practical mechanic, or visit some model barn, before he undertakes an enterprise that will cost him from three hundred to eight hundred dollars, the out-buildings being arranged according to the means or the taste.

I think every farmer should put up a wood-house; and whether frame or of logs, I will take the liberty of suggesting one I think well adapted to the wants of farmers generally.

Put up your building eighteen by twenty-eight feet; take twelve feet at one end for a workshop—a thing every farmer must have—and you have a building sixteen by eighteen for your wood; then make a shed eight feet wide, which you can drive under at any time to throw out your wood; and, in addition to this, you have a

shed at all times for your wagon to stand under. Then, with a small additional expense, you can fix a windlass, by means of which you can hoist one or two wagon beds up and be entirely out of the way, which may be done by a boy twelve years of age.

Having made such suggestions with regard to clearing, to buildings, and to the garden, as I think appropriate, I shall proceed to make some suggestions with regard to the cultivation of the soil, the time of putting in the seed, and such other incidental matters as may be properly connected with the same.

Upon the subject of deep and thorough plowing, I have already said something; and so general has the propriety and the importance of deep plowing become, that it is almost useless to say anything more upon it; and we shall pass from it to the time and manner of sowing wheat. And this, like very many other things pertaining to farming, cannot always be done when it ought to be; but when the season and other things are favorable, I think the chances are in favor of early sowing, say from the first to the twentieth of September. I know very good crops of wheat have been raised that was sown much later; but in most cases it has been owing to something peculiar either in the soil or the season. In almost all cases successful wheat growers sow their crops early.

As to the kinds best suited to our climate and soil, I shall say nothing, as one kind seems to do the best in some localities, and then seems to deteriorate, while other kinds appear to succeed better, and my observation has fully confirmed me in the opinion that a change from another neighborhood, of only a few miles, of the same kind, is a great advantage.

As to the manner of putting it in, this may differ very materially, owing to a great number of causes. If it is fallow, plow it deep and thorough, either in July or August, and then, if you wish to manure, put it on and plow it again; then harrow, and if your ground is still rough, roll it, then drill; for I believe the drill will eventually supersede, in favorable localities, broad-cast. If you do not intend to drill, plow in July or August and harrow thoroughly. After manuring, if you manure at all, plow in with a shovel plow. If it is oats or wheat stubble, put on your manure, then plow it deep and thorough, then harrow, and, if necessary, roll, for the drill. If not drilled, sow broad-cast, while the land is fresh, and harrow in. If planted in corn, plow in with a shovel plow or with a cultivator. I prefer the former.

The next crop in which the farmer engages most extensively is that of raising corn. Indeed, in a great many localities, and with a great many farmers, this is regarded as the most important crop; and upon the subject of this crop I shall make a few remarks, letting them pass for what they are worth with the corn grower. Perhaps there is no crop raised in our latitude where deep plowing is more essential than this, and especially in breaking up the land.

The land being thoroughly broke, the old routine of furrowing out commences, which are usually about four feet apart, and then dropping; and though this is light labor, yet it requires not only much care but considerable practice to do it correctly. About the only way to get it done exactly right is to furrow your ground both ways, and then drop it the way it was furrowed first. It being dropped correctly is a matter of much importance in the cultivation of the crop.

If your ground is cloddy, you may proceed to roll it immediately after it is planted; and whether rolled or not, a furrow may be run one or both ways to advantage before the corn is up. This I have found of great advantage in preventing the moles and birds from disturbing it.

In about three weeks after your corn is planted, you may harrow with a one or a two-horse harrow, one or both ways. This being done, you may introduce what is called the bull-tong, and the deeper and closer you plow to your corn while young, the greater are your chances for a good crop. I feel confident that a furrow run both ways before your corn is up, either with or without rolling, then harrowed twice, then plowed twice, twice in a row and once three times in a row; then have the surface levelled as much as it can be done by the cultivator.

Unless the season is very unfavorable you will have a fair crop of corn on almost any soil. And further, I think a system of cultivation for this crop may be so deep and thorough that it will stand almost any drouth.

There are other crops grown to a considerable extent by the farmers of the country, such as oats, rye, buckwheat, turnips, &c.; but lest I should be charged with being tedious I shall pass them by, leaving it for the observing farmer to exercise his own judgment as to the manner of cultivating them.

Next in importance to a system of thorough cultivation, is the furnishing of the farm with the best kinds of farming tools; and indeed it is almost next to impossible to do it without them. And I think the great improvement in the different branches of mechanical business is such, that there is little or no excuse for not having them; and it is with these as it is with most other articles—the cheapest is the dearest in the end.

As an evidence of this I will state that, in the winter of 1841, I had a common two horse wagon put up by a man that considered himself a first rate mechanic, as to the wood work, at that kind of business. I used that wagon until the fall of 1852, near eleven years, and the repairs upon it did not cost me two dollars; though as much hauling, and that as heavy, too, was done upon it, as perhaps any other wagon in the country.

Then, I say, by all means purchase the very best of farming implements; for it is false economy to purchase those of an inferior kind, and be certain to not store them in the big shop that has neither sides or covering upon it.

And now that you have got your farm cleared, your dwelling and other buildings as convenient as your money will enable you to have them, the next thing that should claim the attention of those who intend to make farming a business, is the subject of stock, though you may have been paying some attention to this while the other improvements alluded to have been going on.

Every farmer, and almost everybody else, admires a fine horse, a fine calf, a fine pig, a fine flock of sheep, to say nothing of the shanghais, and a host of other et ceteras. Now, how much more does it cost to feed a horse that at four years old will bring from $100 to $150, than to feed one that at the same age you cannot sell for $40? Or how much more does it cost to raise a bullock, that at four years old will weigh from 800 to 1000 pounds, than it will to feed one that at the same age will not weigh half that amount? Or how much more does it cost to have a flock of sheep, that their wool and their carcasses will always bring the highest price in the market, than it does to keep a flock that are a perfect prototype of

Pharaoh's lean and ill fed kind? And of pigs—how much more does it take to make them (I mean some kinds) weigh, at from 12 to 18 months old, from 200 to 400 pounds, than it does to keep his hogship two or three years, and then scarcely weigh 200? But the time has come that if we have any such stock we feel somewhat ashamed of them, and try to keep them on the back part of the farm.

I shall here drop this subject, though suggestive of much more, and pass to that of agricultural associations. And here I remark, that the people, the farming community I mean, are either laboring under great deception, or there is an abiding conviction among them of the great utility of these associations.

What means these county fairs around us, where not only the sterner sex, but the matrons and the maids, all mingle in their rivalship to bear off the palm? What means the great and deep feeling among the people, and all eyes are turned toward the capital of our State, with impatient anxiety for the approach of our State Fair, where not only the citizens of our own State, but the citizens of other States will strive with a commendable zeal to excel each other in the exhibition of their respective mechanical and agricultural products? And can all this be going on and the farmer catch none of the spirit of inquiry and improvement that must and will of necessity be aroused by this state of things? If all this can be going on, and the farmer not be aroused by any spirit of inquiry, he certainly must possess a stupidity approximating very nearly to that of Baalam's ass.

Already is their influence being distinctly marked by the oft repeated inquiries of who have the best stock of horses—of cattle—of sheep—of hogs—and a hundred and one other questions, which are the legitimate results of these associations. And the citizens of this county seem to have caught the spirit, and the progress will be onward, and still onward, until the stock and other products of old Franklin will stand side by side and compare favorably with those of any other county in Hoosierdom.

And now, gentlemen of the committee, I submit these remarks to your judgment without any revision, confidently believing you will attach all the importance to them they merit, and no more. And if you should chance to detect the smell of the taper upon them, it is because the labor of the day did too much engage my time to throw them together by the light of day. And I am yours and the people's humble servant.

ESSAY ON AGRICULTURE.

BY A. W. LEMMON, OF FAYETTE COUNTY.

In ancient times the sacred plow employed
The kings and awful fathers of mankind:
And some with whom compared your insect tribes
Are but the beings of a summer's day,
Have held the scale of empire, ruled the storm
Of mighty war, then with unwearied hand
Disdaining little delicacies seized
The Plow, and greatly independent lived.

Thompson's Seasons.

Of all the pursuits of life, in which men are or have been engaged, none are more ancient, none more honorable, none more useful, none more healthful, none better calculated to nurture in man a proper gratitude to the giver of all good gifts for blessings bestowed. None better adaped to calm his passions, harmonize his feelings, purify his mind and heart, and enable him to approximate as near as possible to perfection in the bifold capacity of a good citizen and a good christian, than agriculture.

When the curse was pronounced upon the *ground*, and Adam and our erring mother went forth from Eden's blissful bowers, it was a conditional curse, and he was sent forth, endowed with the power of reaping the rich reward which his heavenly father had garnered up for him in the vegetable kingdom. A power inherently capable of expanding and strengthening while time should last, and though he was to earn his bread by the sweat of his brow, yet was he fitted to open the sealed mysteries of vegetable organization, and make the fruits of the earth, and grass of the field, in an improved and cultivated state, become a source of abundant comfort and profit to him.

And when the waters ceased to roll over the mountains and plains of a submerged world, and the nucleus of a new race descended from Ararat, the vengeance of an offended God was satisfied, and in mercy he promised the progenitors of unborn millions that, "While the earth remaineth, seed-time and harvest, and cold and heat, and summer and winter, and day and night shall not cease. Then was the "curse" taken from the ground, the covenant made, and the "bow in the cloud" selected to be a significant emblem thereof while time should last.

Biblical history throws much light on the agriculture of the early ages, and speaks of the great fertility of some particular countries. When Abraham went down into Egypt 1920 years B. C., her lands were under a system of high cultivation, and two hundred years later Joseph made his advent into the same country. Of his providence and foresight given, all have read; through seven years of plenty he amassed the surplus treasures of the earth, and when the seven hideous years of famine came, so great was the abundance that it supplied not only her own children, but also the starving nations that begged at Egypt's throne.

Palestine, or the Holy Land, is described as "a good land and large, a land flowing with milk and honey," and it was in truth, a land abounding in all the

riches of uncultivated nature, necessary for the wants of a chosen people, who after having dispossessed the Canaanite, rendered themselves noted as agriculturists.

Profane history also gives direct testimony to this matter. Thrace, Sardinia, Sicily, Egypt, and Africa were most famous for abundant crops of grain, many others less famous, were also very fruitful. In the letters of the governors of Africa to Augustus and Nero, it is stated that one bushel of wheat sown, has been known to produce one hundred and fiftv, and Pliny sanctions the statement by reference to like yields in Egypt and Boetia. In the days of Augustus, Egypt alone sent to Rome annually, twenty millions of bushels of wheat.

But were we not told anything directly in regard to agriculture, indirect evidence sufficient exists, to prove that husbandry was well attended to in many nations, and was one of the most important callings of mankind.

We hold, that tribes of men may exist in sparsely settled countries, without tilling the earth; that nations numerically weak, may subsist by other modes of living; but that vast cities cannot rise nor subsist, nor immense armies be maintained, nor vast conquests be made, in lands where agriculture is unknown, and that in proportion to the wealth, numerical strength, and high intellectual standard of a nation, will be the knowledge, progress, and rewards of agriculture. It is without question or doubt, the supporter of all other arts—the art *excelsior*.

Hence when we tread over the sleeping ruins of cities built by *men forgotten*, and know that the fractured blocks and broken columns were once piled in all the glory of symmetrical proportion, and that their once lofty capitals looked down on busy thousands moving in all the turmoil and excitement of life, through what once were streets,—we *know* that *agriculture* was the basis of support for the population that filled them, whether her treasures were drawn from their vicinities, or from distant lands, and we know also, that without it, there would be no ruins to tell in mournful silence of this magnificence in other days.

There have been days of clouds and great darkness, as well as days radiant with the sunlight of progress, in the annals of agriculture. Despotism, pride, and ignorance have often warred against it, and sought to deprive it of its honors by holding it in contempt. In some countries, it has been held in such disrepute, as to confine the pursuit of it to the lowest class of people. In such cases, where no incentives were offered to induce men to make advancements, it necessarily languished. This was particularly so during the "dark ages," but wherever the true philosophy of man's duty, happiness, usefulness, and obligations to society were understood there, its triumph, whether in ancient or modern times, has been most glorious.

Rome called Cincinnatus from the plow, and invested him with dictatorial power. Marius Curius Dentatus, who had three times received the honors of a triumph, was found by the Samnite ambassadors by his fireside boiling roots. And Cato, trained in the same schools of wisdom, wrought in the same field and sat at the same table with his own bondsmen. Kings wrote in its favor, as Hiero II, of Syracuse, Attalus of Pergamus, and Archelaus of Cappadocia.

And Pliny says that in those happy times, the earth, glorious in seeing herself cultivated by the hands of triumphant victors, seemed to make new efforts, and to produce her fruits with greater abundance. Prosecuted under anything like favorable circumstances, it has always begotten nobleness of principle and independence of spirit, and though the array of ancient names illustrious, have conferred

honors upon it as an art, yet was it reserved for happy America to give the greatest eclat to it that the world has ever conferred. It was her yeomanry that went from their unfinished furrows to settle the grand question of human rights It was her farmers that gave to the world the first examples of patriots, heroes, statesmen and rulers, known to the world, — guided by a farmer, who, having lived to see her independence achieved, ruled her rising prosperity with judgment and justice, and having Cincinnatus like again returned to the plow, laid down to rest in Mt. Vernon's hallowed shades.

Having treated of the antiquity, utility, and honor of agriculture, we will make a few remarks of a more practical nature, and then conclude by showing its effects on man's health, morals and happiness.

When we turn our eyes to Europe, we see what expense and experiment have done. Her fertile fields and crowded granaries proclaim the benefits of an improved system. Earlier in the field of progress, she is ahead of America in some respects, but our country is making rapid strides in improvement, and will soon own herself second to none.

Our climate and soil are better adapted to the cultivation of the more important cereals, and it only requires prompt attention and perseverance to place us on a level with any grain producing country in Europe.

A brighter day is opening over us, — throughout the length and breadth of the land annual fairs give encouragement to mechanics and agriculturists to enter into honorable and laudable competition. Labor saving machinery and implements enable the farmer to do in one day with a few hands, what he only could before have done with many, and agricultural magazines and newspapers are circulated from Niagara to the Rio Grande, from the Atlantic to the Pacific, and are found here, there, everywhere, — on the shelf of the log cabin, on the merchant's counter, the mechanic's bench, and in the professional man's study.

They are spreading the knowledge of important truths, new discoveries and improved methods, and prompting to further experimental research. They are exciting and inciting the public mind in a praiseworthy manner, and sweeping away the prejudice for a time so stoutly maintained against "book farming." Men have at last discovered that our eminent "book farmers," as they are called, are among our most eminent practical ones. They have also discovered that he that hath both the science and the art, is an overmatch for him who has but the one. They begin to see the advantage of books and papers of this class, they find that the man who possesses the knowledge of an important fact, or has made some discovery, can verbally inform but a few, and the knowledge is confined to narrow limits, whereas he who contributes to a newspaper or magazine, confers the benefits of his knowlede upon the whole community in which the medium of his communication circulates. He sows truth broadcast, not sparsely and niggardly, and surely truth does not become falsehood by being widely disseminated.

The only way to break up the soil of prejudice, hard and trampled as it is, is to break up the *sub soil* — ignorance; and of all the teams now in the field, engaged in effecting this desirable object, none are more efficient than our county fairs.

There is not enough philosophical tact in the farming community in general. Men too often live to plow better than to reason, but the reasoning, philosophic mind, is alone capable of making or profiting by discoveries. To supply this defici-

cacy, agricultural schools should be established in every State, and if practicable, in every county.

To cultivate the productions of the earth is one thing, to understand their nature and composition is another. By knowing the elementary principles of grains, and the elements of soils, the suitableness or unsuitableness is determined. Be assured labor will avail nothing if the grain cannot find the necessary elements in the soil. Let us look at one fact for illustration: Dissolved flint is essentially necessary to wheat, rye, corn, oats, timothy, &c., to give strength to their straw or stalks. It is their bone, and is as necessary in the vegetable economy of cereals as is phosphate of lime to the animal economy, and you can no more reasonably expect good straw and healthy grain where there is not a sufficiency of silica, than you can expect a child to have strong bones, that for a long time is fed on food containing no phosphate of lime.

From thirty-nine to one hundred and fifty pounds of soluble flint is needed to an acre of wheat. Lands yielding crops that do not absorb much silica, by often stirring and exposure to sun and rain, leach and become sterile, while on the other hand clovering increases the quantity,—one *great* reason for rotating crops.

A difference of opinion exists in regard to the best method of preparing the ground for wheat. Some advocate late plowing, some the summer fallow system. It has been urged against the latter, that some of the fertilizing elements are thereby lost, but assuredly there are some gained also; for stalks, stubble, and in fact anything turned beneath the surface, undergoes more rapid decomposition during that period of the year, than at any other, and is more likely to be thoroughly incorporated with the other elements of the soil at the next plowing. It is certain however, that ground for wheat should be thoroughly and deeply broken, well harrowed, and uniformly sown or drilled. If sown broadcast, two bushels per acre will be required, if drilled, one and a half.

Early sowing is considered best; but the condition of the ground must always be considered, as well as the nature of the season. The proper time will be between the middle of August and the twentieth of September. It should be well harrowed; then pass the roller over it; this will complete the pulverization of the clods, cause the earth to bed close to the grain, save it from the depredation of birds, expedite germination, cause the ground to absorb rain equally and drain evenly, and prevent the formation of long, shallow, furrow puddles, which in winter fill and freeze frequently, and destroy the roots of the wheat which have been spewed out on their sides by the action of the sun's rays on a warm day. All that come in a line with the ice surface are almost sure to perish. Ground properly rolled has not such a tendency to spew up as that which lies uneven and receives the sun's rays at different angles. This course of treatment insures vigorous vitality to the grain in the first stage of its growth, draws the silica equally from the ground, producing proper straw and well filled heads.

Of *zea maize*, or Indian corn, there are many varieties, but the same method of cultivation is applicable to nearly all of them. For this crop, subsoil plowing is of the greatest advantage, by submitting the upturned soil to the action of sun and rain and incorporating it with the rest, thereby bringing all its elements to assist in cherishing the plants more effectually. It is always attended with good effects, and sometimes with surprising results.

The ground for corn should always be deeply broken. If properly prepared, the roots will extend deep into the earth to find food. Furrow off, and cross at a width of three to four feet; select the best seed you can get for planting; never plant poor seed of any kind; see that they are not dropped all together, but as far apart as possible in the hill; cover carefully, suffering no clods to rest under or upon the corn; five or six kernels will be enough to a hill; when up pull all out but three; push the plow early among the corn after it is up; suffer no weeds to get the start of you; remember "a stitch in time saves nine." Corn so planted partially shades the ground between the rows and breaks the intensity of the sun's heat, and at the same time exposes it sufficiently for the evaporation of moisture and the absorption of the rain—two things essential to the success of the crop. The cultivator is a most efficient implement in working corn; it works close up to the hill, freeing, cleansing and leveling the surface; does not tear off and destroy the lower lateral fibrus roots as much as the plow does, when worked up as closely, nor pile clods in the vicinity of the hill, which is too often the case when the plow only is used, and which is always injurious to young corn.

Corn is the most important production of the United States. Although it has been asserted that it had an eastern origin, it is believed upon careful investigation that its origin is American. At the discovery of Cuba by Columbus it was found in a state of cultivation; and the Peruvian historians say that the palace gardens of the Incas were ornamented with maize in gold and silver, with all the grains, spikes, stalks, and leaves. It is found in a wild state from the Rocky Mountains to Paraguay, each grain being inclosed in a glume or husk, instead of being naked as in the cultivated state.

The limits of an essay on agriculture, as is required for county fairs, being no greater than should properly be given to one production alone, a few general remarks only will therefore be made upon the others; agricultural books, papers, and magazines, being the proper vehicles of information in regard to their particular cultivation.

Rye is said to be a native of the Caspian Caucasian desert, and has for ages been cultivated for bread in northern Asia, and all over Europe. Barley is geographically analogous, growing on like soils and in like situations.

The cultivation of oats is confined principally to the western, northern, and middle States, and is raised for the feeding of stock; it has formed a part of the subsistence of man in some countries, but has never been used here in that manner except as a diet for sick persons. It has a wide range of climate, is very hardy, and, in suitable soil, is very prolific. The latter part of March and early part of April is the proper time for sowing this grain.

The following exhibit, from experiments by Sir Humphrey Davy, will show the proportionate nutritive qualities in the cereals:

	Nutritive matter.	Starch, or mucilage,	Gluten and albumen.
American Wheat,	955	730	235
Nolfolk Barley,	920	790	60
Scotch Oats,	743	641	87
Yorkshire Rye,	792	645	109

One thousand parts of vegetable matter of each were analyzed, and the nutritive matter extracted as above shown. These proportions will vary some little according to the qualities of grain, but are sufficiently near the truth in all cases to show the relative proportion of nutriment in each. Gluten is a substance which approaches nearer to animal matter in its nature than any other vegetable production, and wheat possesses twice as much of it as any other grain; and it is this that gives it the superiority over other grains, which though abounding in mucilage afford but little albumen.

From the statistics of the last census, we find that there were raised in the United States, during the year ending June 1, 1850, as follows:

Wheat,	100,503,899	bushels.
Rye,	14,188,639	"
Corn,	592,326,612	"
Oats,	146,567,879	"
Barley,	5,167,016	"
Buckwheat,	8,956,916	"
Sweet potatoes,	38,259,196	"
Irish potatoes,	65,796,793	"

What a glorious declaration of industry, for a country that as yet is but in its infancy! How encouraging to every one engaged in agriculture! How animating to every American heart!

Blest with fertile soil and genial climate, our country is emphatically the farmer's *home*. And under our free institutions, and with the amplest means for knowledge at command, the farmer of America enjoys advantages which can no where else be found.

But under all these advantages he must do *his* part if he would succeed. He must have a thought, an eye, and a hand for everything. He should carefully improve his stock, feed and house them well, use the best quality of implements, and take care of them when not in use. His orchard should be kept well trimmed, and grafted with the best fruit. His fences should be kept in good order, and not left as some are as though they were expressly prepared to learn animals to be roguish. He should save all the manure that is made, and make all that he can of everything that is susceptible of conversion into it. He must be deligent and thrifty, remembering the adage that "many a little makes a mickle.

Finally, with a few observations on the healthfulness, moral influence, and happiness of this occupation, we will conclude.

It is a healthy occupation, because it calls into exercise all the muscles of the human body, both of the lower as well as the upper portions thereof. There is purity of blood insured—because, by being so much of his time in the open air, the farmer breathes a pure atmosphere, the blood is consequently well oxygenized and capable of performing its functions in a healthy condition; the muscles acquire strength, and he is enabled to labor longer and bear more fatigue than men in occupations less conducive to health. Also, the sweet scent of the fields and woods, the harmony of birds, the familiar sounds of domestic animals, and their various

manifestations of pleasure or content, tranquilize his mind and feed it with pleasant emotions, thereby contributing to health.

Of the moral influence it has upon character, Rollin says, "that of all human employments which have an immediate relation to God and justice, the most innocent is agriculture." Also, "that it is more strictly united with religion, and also *moral virtue*, than any other art." And Cicero declares, "that the country life comes nearest to that of the *wise* man; that it is a kind of practical philosophy." And of its happiness, who will dare raise a doubt? From days long since past in the world's history to the present time has the happiness of rural life been a favorite theme; and well has it deserved the praise.

> "Unvexed with quarrels, undisturbed by noise,
> The country king his peaceful realm enjoys."

"Plenty sits smiling at his board." Peaceful pleasures surround his fireside—innocence smooths his pillow—gratitude is in his heart—thankfulness upon his lips—happiness in possession, and heaven in prospect.

ADDRESS

Delivered before the Wells County Agricultural Society, October 2, 1855.

BY I. D. G. NELSON, ESQ.

Some twenty years ago, a stranger in search of a home in the west, visited this, among other places—charmed by the dazzling alurements of commercial and mercantile prospects in a neighboring county, he was induced to abandon for a season, the imaginary toils and perplexities of rural life to which he had been accustomed, and to engage in other occupations. After having spent the best days of his life in pursuits that afforded neither pleasure nor profit, he returned to his first love, and now stands before you, the advocate of public and private enterprise in the promotion of agricultural interests.

Farmers of Wells county, I did not come here expecting to instruct you in the business of farming or the science of agriculture. I see too much before me and all about me, not to know that I can get more information here than I can impart. But having some little experience, I came here to have a social interview, and to make a few practical remarks upon a subject, that because of many considerations, is peculiarly dear to me, and one on which I delight to dwell.

The contemplation of the subjects of agriculture, horticulture, and pomology, all of which are intimately blended together, produces at all times a sensation of pleasure and delight that I have in vain searched for elsewhere. But delivering a

public address, is quite a different thing from the mere contemplation of the subject. Unaccustomed as I am to public speaking, I should have taken more time to write an address at length, but other engagements have intercepted any such purpose — therefore, such rambling thoughts as have hastily occurred to my mind during the few hours I have snatched from other pursuits, (aided by a few imperfect notes,) will embrace the theme of my discourse.

Since the period alluded to some years since, what a change has been wrought! Where, with greater propriety, can it be said the forest has been made to "bloom and blossom as the rose," than in this, the county of Wells? But a few years ago an unbroken wilderness, now amongst the most promising agricultural counties in the State, and yet this progressive work in agriculture has just commenced. We are just entering upon a new era in agriculture and those who get the start will doubtless win the prize. It requires no prophet to tell that Wells county will not be distanced in the race. Already having the start of many of her sister counties, she is pressing on the enterprise as her exhibition here to day, notwithstanding the bad state of weather and prevailing sickness, bears witness; while others are resting upon their oars, "occupying an armed neutrality," or totally indifferent to the importance of the issue. In vain may agriculturists endeavor to keep pace with the advances made in other pursuits and sciences, if they do not embrace the opportunities and facilities of acquiring the necessary information. And how can it be done so readily and so well, as by agricultural organizations, frequent exhibitions and fairs—a gathering together of those whose interests are identical, for a comparison of notes, examination of stock, agricultural implements and kindred matters.

It has been well said that "agriculture, as a profession, stands in advance of all others in point of dignity and importance." It is the most ancient, the most useful, and exercises the best and most conservative influence over the physical and moral good of community at large. Its practice is directly promotive of health and virtue, and upon it the world depend for food. To subdue and cultivate the earth and to watch over and tend the flocks and herds which subsist upon her rich grasses and sport over her green fields, was the first, and seems the best, as well as the most natural occupation of man. To elevate and improve his calling, and to promote its interests in every way is the farmers duty; and as a consequence growing out of this obligation, he is bound to use the means and employ the agencies best calculated to produce the desired result. Placing, as I do, agricultural societies among these means; and if I am right in this, then I at once sustain the position that farmers are bound to rally around and sustain them. Every occupation has a knowledge peculiar to itself, and is governed and regulated by certain laws, principles, and practices of its own.

Agriculture is not exempt from these general rules, on the contrary, it is of all trades, the most difficult to master; none requires so much thought, a judgment so discriminating, or such constant exercise of the reason. In no other occupation are results dependent upon the watchful observance of different causes, fluctuating continually under the influence of wet and dry, heat and cold. No other class of men need so often to refer to experiments, and whose experiments have to be carefully noted with attendant circumstances of soil, climate, changes of weather, degrees of heat and cold, rain and sunshine. The science of agriculture

embraces a wide range, and will when properly appreciated and systematically studied, call into play the noblest and best powers of the intellect. The simple principles, and the magnificent beauties which govern the earth. air and water, with their combination and changes are the legitimate subjects for the study and investigation of the farmer.

Man is a thinking being, and few if any class, have so much time and opportunity for meditation as the farmer. He is necessarily much alone, and is continually surrounded with all the varying phenomena and the sublime realities of nature. Being thus much in the storehoure of nature, he requires correct data for thought and investigation — he requires a proper direction to be given to his reflections — society steps in and becomes the school master.

Let the farmer then cherish these social organizations, where the circle of his acquaintance may be extended, and the sphere of his usefulness widened; where he may unite profit with pleasure and get gain with joy. The farmer, of all men, should seek these social and intellectual societies; they are peculiarly fitted to his circumstances and his position. He is comparatively isolated, his dwelling is not the pent up city, he does not often meet where most do congregate. His farm with its broad acres is his home; his house standing alone his castle; his daily routine of business leads him to the solitude of the fields, and thus his social feelings are whetted keenly to relish indulgence. The farmers' society may be, should be the place of ingathering, the meeting together of friends — the weekly or monthly retreat for the discussion of important truths connected with agriculture, and where a pleasant hour of elevated social intercourse may be enjoyed; thus making all within its influence wiser and better, preparing all for a better discharge of the various duties of life. We have seen that his calling stands pre-eminent in importance and dignity.

The census discloses the fact that it embraces a large majority of the people, and also combines the most wealth and pays the most taxes; and common observation, common sense, and the statistics of crime, reveal the further fact that it stands pre-eminent also, in the observance of laws, and the preservation of good order, and in the practice of virtue and morality, either public or private. And do not these facts most clearly demonstrate the necessity, and indicate the utility of agricultural societies, where this great and paramount interest shall be speedily looked after, and where continual effort shall be made to elevate and improve it? Farmers need not be told that if they will not care for their interest it will go uncared for. It is not to be denied that of all men, the tillers of the soil have been most careless about their distinctive rights and privileges.

Agriculturists should not merely keep up with other improvements of the age — they should lead — they are the foundation, the life and soul of every public enterprise — as they prosper the country advances, where they decline everything else sickens and dies. The history of the world declares it — it is written upon every page.

Farmers of Wells, it is your especial privilege to lead in many of the agricultural enterprises of the day. Your extensive improvements, wrought in a few years, and the general prosperity of your county, all conspire to admonish me, that a single suggestion to you on this point, would be useless if not out of place. I know you are not unmindful of your high calling. The cultivation of the soil is

no longer regarded as an inferior employment. It is second to no occupation, a science of rare merit now engages the talents of the world.

There was a time, however, when farmers themselves, by their own acts, frequently acknowledged the inferiority of their calling. If they had a promising son, rather a bright boy, he must be educated for some of the professions, even sometimes at the expense of keeping the remainder of the children in ignorance; and if there was a fool in the family he was always sure to be selected for a farmer. Oh! what a delusion, and how humiliating the reflection. But thank heaven, those clouds of delusion are being chased rapidly away, and the horizon is beginning to glow with greater effulgence, because of the long continued darkness that has prevailed.

Rural pursuits are now attracting professional men, merchants, and others, from their various callings, who at once become the most enterprising of farmers. The colleges, everywhere, are attaching an agricultural department, where agricultural chemistry is taught, and, in some high schools, practical agriculture is made an important branch, and large farms cultivated exclusively by the students. Quite recently I saw a letter from a student in one of those institutions, the son of a wealthy merchant in Philadelphia, and once a clerk in his father's establishment, in which he states that his chief employment, besides his usual studies during that week, had been to attend market every morning at four o'clock, with the market wagon of the institution loaded with vegetables.

Allusion is made to this particular case for the purpose of showing the change that public sentiment has undergone in regard to the character of the calling. Doubtless a few years ago both the father and the son would have considered it quite too low an occupation, if not degrading to the character of the family, to be selling vegetables in the public market, but now both are proud of the vocation. I have not time to dwell or draw the contrast between the two situations here described. But let this suffice. One day we see a youth behind the counter of an extensive mercantile establishment, selling silks and satins to the wealth and fashion of the city, the next day selling vegetables in a public market to the servants of these same persons, hours before they are out of their beds.

Who think you, my friends, enjoy the greatest amount of health, pleasure, and true happiness—this young man in the country, who breathes the pure and bracing air at the break of morn, or those who, reclining upon the rose bed of luxury, sluggishly sleep away the best hours of their lives within the confined limits of the city?

Strange as it may appear, there are thousands upon thousands who live and die in large cities, at an advanced age, without ever having seen the sun rise in all his majesty once in their lives—never having presented to their astonished vision the splendor and magnificence of the scene that should inspire the beholder.

I have intimated in this discourse that I was a practical farmer—I profess to nothing else—not a very worthy one, to be sure, but such as I am, with a determination to make such progress and improvement as I may deem in accordance with the true interest of the farmer and the spirit of the age, I expect to spend the remainder of my days—born and educated to that pursuit, I carried with me to other occupations a lingering thirst to return as quickly as circumstances would permit—to that fountain from whence alone flows pure pleasure and domestic enjoyment.

The allurements of city life never had any charms for me, and, therefore, soon after I came to the State I purchased the farm which I now call my home, with a determination to move upon it at an early day; but the entanglements of business, which took many active years of my life to disengage myself, prevented it for a long time, although I gave personal supervision during most of the time; and when I had the "blues," about which every merchant and many others know something, I went to the farm and worked it off. It is a certain remedy; and if there is a town man present afflicted with that distressing complaint, I advise him to try the specific.

There is everything in the life of a farmer to "drive dull care away;" no matter how humble the place or situation in life. Though he may not be able to boast of his "cattle upon a thousand hills," yet the voice of the lowing herd and the bleating flock, has charms to him that he who dwells in his palace in the pent up city is a stranger. He breathes the pure air of heaven, uncontaminated by the foul and loathsome pestilence of the city, that lurks about in midnight stillness, or walks forth with greater boldness at noonday, sowing, broadcast, seeds that tend to poison the mind and destroy the soul.

The late Henry Coleman, a most devoted friend of agriculture, said many excellent things, and from one of his sayings I extract the following:

"There is a beautiful circumstance connected with agricultural emulation. In many of the pursuits in life, one man gets rich by making another man poor; he climbs the ladder by putting his foot upon another man's shoulder, or he builds his own dwelling out of the fragments of his neighbors, which he has undermined. This is often a crying injustice, and inflicts many bitter mortifications, or arouses vindictive and tiger passions. Emulation in agricultural improvements enkindles no such baneful fires. A man can make no improvements in husbandry without at once extending the knowledge and advantages of them to others, the enlargement of the capacities of the soil, and every increase of its productions, confer an immediate benefit upon the whole community. It is an excellent rule that whatever we do we should do as well as possible. I do not refer, in this case, to what may be called the ornamental in farming, but to all that is practical and useful. A poor man, who is without means, and struggling single handed under the difficulties which overwhelm so many of our farmers in their setting out in life, may be excused for getting along as best he can; but not so with men who have had it in their power to cultivate their farms in the best manner—who farm not for pleasure but for profit, and to whom farming is as much a profession and trade as any other business is to any other man. In other departments of business it will, I believe, generally be found true, that the more careful the workmanship the more successful the result. Agriculture forms no exception to the general rule; and the more thoroughly and perfectly this art or business is conducted, so much the more certain is the ultimate success. By the benificent constitution of Divine Providence, the earth, while it contributes to the support of man and beast, is designed to become more productive, or keep up its richness by its own activity. It is like the fountain of true charity and beautifully embematical of the Divine benificence—the more it expands the more its abundance increases."

But there is something sadly out of joint in these matters; few, very few men succeed to any great extent in farming. While a few farmers, comparatively, get

most abundant crops, the great mass of farmers, having soil of equal and frequently of superior fertility, do not, on an average, get more than half as much; and it is a lamentable fact, that with all the improvements that science and experience has forced upon us, we do not produce as large crops as were obtained centuries ago.

In the province of Rome, as far back, I think, as in the days of Varra, the statistics of that time show the yield of wheat to have been thirty-two bushels to the acre—more than twice as much as the average yield in the United States, and considerably more than that of Great Britain. But they doubtless had poor farmers then as we have now; for if we go a little farther back, we hear Solomon administering a most withering rebuke to indolent farmers. Hear him: "I went by the field of the slothful, and lo! it was all grown over with thorns, and nettles covered the face thereof."

So it was in olden times, so it is now, and so it will be to the end. Still that affords no apology for our not doing our duty. And now, least I forget it, and since the subject is introduced, permit me to make a few comments on that slovenly practice hinted at by that sage, and pursued by some in these days—I allude to the habit of letting fence corners, &c, grow up with briars, elders, and the like, instead of cutting out everything of the kind at least once a year. I took the precaution to cut mine out before I left home, and I hope I am treading on nobody's toes here present. I am a plain talker, and shall say all bad as well as good things in regard to farming that I can think of.

I will here observe, that if farmers will devote one day during the dry, hot weather, in the latter part of the month of August, to cut out the fence corners, patches of willows, and noxious weeds, with a bush scythe or an old axe, he will, in two or three years, totally destroy them. I have practiced it for several years with the most satisfactory results. It is equally valuable in underbrushing wood lands desired for pasture. The same amount of labor cannot be applied on the farm in any manner that will make the tenth part of showing in appearance or profit. The proper time to cut is when the growth for the season is about completed, which differs in proportion as the season is wet or dry. This season, the first of September, for many species, was not too late. All noxious weeds should be cut when in full bloom and before the seed is ripened. It is at this time that the plant is more nearly exhausted than at any other—preparing as it is to ripen the seed and wood—and if cut at that time, if it does not extinguish the vital spark, it will the next season exhibit a sickly growth, which, if then cut at the same season, will most commonly destroy every vestige of it.

But few plants can exist more than two years without maturing their growth and sending back the sap to the roots to sustain it. If there is any one thing that is a surer index to a poor farmer than another, it is to see rows of thorns and thistles, briars and brambles, extending along his fences; patches of willows scattered about his farm, eating up the best land he has, and sprouts growing around the stumps, year after year, in every direction.

There are exceptions to every rule, it is said, and there may be to this; but I am somewhat inclined to doubt it. There are, however, apologies in abundance, I am free to admit. I know there are many in this new country who have to get along the best way they can, struggling through poverty and sickness to make a

little home. Of such it would be unreasonable to expect all that you would of a man of wealth, with a large farm, paid for and all cleared up, except the fence rows.

Poor fences and briar hedges always go hand in hand, for different reasons; not the least important of which is, that persons who would have the one would not eschew the other. Briars exclude the sun from the fence; consequently it is wet or moist most of the time; the fence decays rapidly; it is neglected more than fences that can be approached without danger of tearing your clothes off of you or losing your eyes—consequently a source of annoyance to the owner, as it affords a fine field for the *enterprise* of unruly stock, and is also an eyesore to the more tidy neighbor.

But this is not *all* that is to be said about a slovenly farmer—a volume would not contain it. He is of all men the most miserable and unhappy. Nothing goes right with him, order is a stranger to him. No place for anything and nothing in its place. His plows are left where used last—harrows ditto; nobody knows where—the hiding place is found in the weeds perhaps after half a day's search—but too much decayed to be used, whipple-trees scattered over the farm, ox chain left on a stump and its whereabouts forgotton, clevis lost altogether, hoes left in the cornfield, (nobody had them last.) wagon out of repair—hay rack broke and part lost, hold backs to the harness taken off to plow corn and can't be found—hogs in the cornfield and cattle in the oats. He foams, frets and scolds from morning until night, day in and day out—miserable himself, he makes every person about him equally so—always behind with his work—never able to do a full day's work at anything—some repairs to make, or something to do out of the regular course of straight forward farm work Late getting his crop in the ground, he has no right to expect a full crop at best, and before harvest a sharp contest ensues between him and his own and neighbor's stock, who shall gather the crop. So goes his life of endless toil and hard work—always complaining of short crops and hard times, denouncing book farming and *agricultural societies in particular*.

This is a hasty and imperfect picture—but alas! truthful in too many instances. But now let us reverse the picture. I have in my mind's eye, a man who settled in a remote part of Allen county, nearly twenty years ago. The land was considered too cold, wet and poor to be made susceptible of high cultivation. Thirteen years ago this fall being in the neighborhood I formed his acquaintance, and enjoyed for the night the hospitalities of his humble abode. I found him a man of enterprise but poor. Everything however exhibited system and order. He had just commenced, when disease got amongst his stock and swept nearly all off, leaving him again with a small improvement and destitute of stock, upon which he had much relied to aid him in improving his land. Not discouraged or disheartened as some would have been he rallied with redoubled energy—pushed on his enterprises that he had conceived and laid the foundation until he ultimately triumphed and planted himself on an eminence that may well be envied, now possessing as he does, not only one of the best farms in Allen county, but is regarded as one of the model farmers of Indiana. He would not thank me if he knew it, but it is due the public that I should give the name of this worthy, successful and enterprising farmer. Noah Clem, of Monroe township. His success in every way is worthy of imitation, and it is hoped many young farmers here will imitate his example. It is within their

reach, and to them I appeal for a response. The whole appearance of his place indicates thrift—good fences, fields well and conveniently arranged—fine stock, good buildings of all kinds, and last, though not least, fruit of all description, and the rarest quality in full bearing, excelled by few, if any, in the State. This man belongs to the progressive school—takes local and agricultural papers, belongs to agricultural societies—in short is one of *the* farmers of the age, and does not aspire to anything beyond it, believing that no political distinction could add lustre to his occupation.

I would not if I could, recommend exclusively what is commonly regarded book farming—nor would I reject it altogether by any means. I will say this, however, that if every man who tills an acre of land would take an agricultural paper, the average products of our land would increase in my opinion twenty-five per cent. in five years, and surely this is sufficient recommendation to induce every person to subscribe at once. Each number of a well conducted agricultural paper contains suggestions worth more to any farmer than the subscription price for a year. They not only aid and instruct in agricultural matters, but contain much else that is useful and interesting and beget a taste for reading, that other papers frequently do not. Then I say to every person after subscribing for your local paper, (and paying for it too—I was once editor and publisher myself,) which is the duty of every person to do, be sure to add one agricultural paper. Now I do not wish to be misunderstood, nor do I intend to be. I don't recommend farming exclusively by the books; that a farmer is to read agricultural works, and have all his work done according to rules and regulations there laid down, or that he is to take every thing for truth that he sees published. I believe that has caused more opposition and prejudice to agricultural papers than anything else. There are crazy, hair-brained theorists in agriculture as in religion, politics, and everything else, and if you would follow them in all their theorizing excursions over the earth, it will not only ruin every man who attempts it, but disgust him with such as is actually valuable. I take it for granted that every farmer is, or should be, a sensible, discriminating person, and that common sense guides him at every step—there is upon a farm cause to bring into daily requisition, the full exercise of sound judgment, and when any new theory presents itself, he should by no means reject it because it is new, for it is the introduction of improvements that agriculture has advanced at such rapid strides the past few years; but before he adopts it, let him read, ponder and examine it well, and nine times out of ten he will form correct conclusions. I will take occasion here to say, however, that all chemical experiments, while they are well enough in their way in the worn out lands of the east and for the experiments of Amateur farms, yet they are useless, extra, arrant and unnecessary in the cultivation of the soil of the west. A soil that is capable of producing more and greater varieties of grain, than any upon the globe. All that is required of us is, to husband and distribute carefully all the manure that our farmers create, plow deep, sow good seed, in good season, harrow or drag the ground thoroughly until the whole is completely pulverized, then the promise that was made never to be broken, that we shall have "seed time in harvest," will surely come, and with it an abundant increase.

But while we do not, nor need not adopt chemical agents to any great extent in the cultivation of our new and virgin soil, yet we must not deny the theory

nor reject wholly their utility or practicability. The whole system of cultivating the soil is in a measure enveloped in a mystery—a lesson full of instruction, reflection and deep investigation—the contemplation of which carries us up and beyond the more selfish things of this world to him who causeth the wind to blow when it listeth, the rain and the dews to descend, the sun to warm and quicken into life and maturity the smallest seed scattered upon the earth.

"Where does life repose in this dried kernel, so small and, to all appearance, so utterly inert? What secret agency swells and protrudes the germ? By what power does it force its way above the surface and gradually expand its leaves and put forth its flower, and mature its fruit? How and where does it gather and assort, and at its pleasure use or reject the various materials which go to form the stem, the leaves, the flowers, and the fruit? How does it construct its exquisite cells, and pierce its delicate tubes, and elaborate its juices, and drink in the subtle gasses that float around it, keeping that which it needs; sending back that which it does not need; doing that by its spontaneous energy which the chemist deems the highest triumph of his skill; and framing its wonderful organism, and compounding its peculiar odors, and mixing in exact proportion its beautiful colors; and all this will, be the situation or soil, the appliances or the manures, what they may, remain true to its kind; so that the grasses do not change to umbelliferous plants, nor the bulbous roots transform themselves into the cereal grains. Beyond all question all these operations go on according to fixed laws, perfectly simple in their operation, and no more the effect of chance or accident, or direct interference of the Divine Artist, than any of the regular operations of the material world. But what are the influences and effects of seed and soil, of heat and light, electricity and gravity, of dew and rain, and air, and manure, and culture—by what circumstances controlled? All these are matters for philosophical inquiry, and as yet can scarcely said to have been so approached."

We all know that seed sown in due time will germinate, grow up, mature, and yield, "some an hundred fold, some sixty fold, some thirty fold;" but how all this is accomplished we scarcely give a second thought. Whether the food of the plant is all exhausted from the earth we know not, or appear to care but little so that we get the increase. A little reflection, however, will satisfy us that some derive their principle support from the earth, some from water, some from the air, while others derive their sustenance from all. Some kinds of bulbous roots will bloom in the greatest perfection in water alone, but cannot mature their seed without extracting from the earth a mineral substance. We know that an acorn, planted in a box of sufficient size filled with earth, will spring up and grow to be a stately oak—that the earth may be separated from the roots and found to weigh nearly as much as when the seed was planted.

A knowledge of the why and wherefore in regard to this, may not appear to be of much importance to the practical farmer, nor does he inquire why the application of plaster increases his crop of clover. It is sufficient, perhaps, for him to know that it does do it. He knows, to be sure, that the dew upon a clover field will be twice as heavy where plaster has been applied, as where it has not, and yet he does not reflect that it is a chemical agent that attracts the ammonia from the atmosphere. Nor perhaps, as I have said, is it essentially important so far as dollars and cents are concerned, that he should know it, so long as he realizes all

the benefits, but it is an interesting and beautiful subject for investigation, and I trust the day is not far distant, when the science of agricultural chemistry will be taught in every district school in the land.

I am not a great experimenter, I have not found time or opportunity to do much in that way, and should recommend caution always. Do not adopt or reject every thing upon a single trial, nor experiment too expensively. One thing, however, I have found the utmost safety in, and that is *deep and thorough tillage.* My friends did you ever hear of a farmer who lost his crop because he tilled it too much? If you did and will tell me where he lives, I will go a hundred miles to see him before I return home.

Deep plowing, I regard as the great secret of success, and yet there is no branch of farming done in our country so poorly. Too much labor cannot be put upon the preparation of the ground for the crop, the experience of every good farmer will bear me out in the assertion, and if we would plow our land on an average three inches deeper, and harrow the ground twice as much as we now do, I am confident the yield of grain would be one-third more the first year, and increase every year, until the largest maximum was arrived at.

These are practical remarks, that come home to the mind and conviction of every farmer who hears me. I am not dealing in mere theory, but facts that concern every tiller of the soil. Then if we know these facts as we do know them, why do we not apply the remedy? This has astonished me more than any one thing in our loose husbandry. I know I am not free from it myself, but am endeavoring to improve upon it with all possible speed. An improvement in this one branch would, after paying all expenses, pay every dollar of our tax, and greatly increase the value of our farms. The philosophy of it is well understood by every farmer, and needs no illustration from me, had I time or space to do so. My only object is to call your attention to it, as I always do upon all proper occasions. It is enough to know, that deep and thorough tillage, creates moisture in dry weather, and absorbs the surplus water in wet weather, thereby ennabling the crop to grow in both wet and dry weather, while it will do neither in shallow plowed ground.

The defects, beside the wants of the proper disposition are mainly these: The plow is frequently not properly constructed, and does not run deep enough with ease to the team — the harrow or drag is too small, and not used half enough, and the team too light — the last a most fatal objection. And this brings me to another important branch in farming. It is the raising of stock, and to my mind, by far the most important, in a primary point of view. Nothing is so much needed, as improvement in the size and quality of our stock. Our horses and cattle are altogether too small for use or profit; too small for farm teams and decidedly too small for market.

There is no part of the farmer's occupation so pleasant, or so cheerfully and satisfactorily performed, as the raising and feeding of stock. To delineate and describe all the various breeds of horses, cattle, sheep, and hogs, and the preferences to be given to each, is what would not be expected in an address of this kind, nor am I at all competent to the task.

My view of the case can be briefly described, by relating an anecdote told of a plain man, who had commenced selling goods. Speaking of the profits of the business, and inquired of at what per cent. he sold his goods, remarked that he

knew nothing about per cent., but he knew this, that if he purchased an article for fifty cents, and sold it for a dollar, that he lost nothing by the operation.

Now, this much I know about stock — that if a farmer raises any breed that yields him twice as much profit as another, he loses nothing by the operation; and that is the kind for him to raise.

Large horses, whether handsome or not, will command a high price and pay a fair, if not a large profit. Not so with small ones. It is true that a small *handsome* horse will sometimes sell for a fair price; but a large homely horse always fetches a good round price, and if he is fine, frequently an extravagant one. Then let us get rid of this half pony, mongrel race, and if nothing more desirable can be obtained, introduce the old fashioned team horse of Pennsylvania, and you are at once remunerated a hundred fold, not merely in the value of the animal for market, but in what is of far more importance, the more thorough cultivation of the soil.

So, too, with cattle. Cows not larger than good Bakewell sheep, are scattered over the country everywhere, to the exclusion of fine stock. I am not about to propose that every farmer forthwith run off and purchase Durham stock at from three to four hundred, and from that to as many thousand dollars each — yet improve stock by degrees, and at the same time improve by judicious crossings, such as he has. I will not dispute the point, whether a suitable cross may not produce as much milk, and make as much butter as the average pure short horns — but for the shambles it cannot be done. Too much head, neck, and other unprofitable meat for the weight of carcass, is to be found in the native cattle. For improvement in that, we must go to the Durhams, where it has been made the study for centuries, and where the greatest perfection is attained in the form and symmetry of the animal, as well as the quality and value of the flesh.

Next, though not least in importance comes sheep. The wool growing business in the west, if sheep are healthy, cannot but be the most profitable of all business to the farmer. One of the principal drawbacks to the farmer in this country is the transportation. It consumes about thirty-three per cent. on all produce, beef, pork, and bacon — while upon wool it does not exceed five per cent. So that we see out of everything we raise, except wool, we deduct an average of three dollars on every hundred, while on the same amount of money for wool we deduct but five dollars. This is a very plain, straight forward statement of facts, which must strike every person as a subject worthy of much consideration.

What attaches no inconsiderable importance to the wool business, is the peculiar adaptation of our land to grass. Besides producing the finest natural blue grass pastures in the world, clover and timothy yields most abundant crops — twice as much on an average as is produced on lands at the east, that are worth from eighty to ninety dollars per acre, and upon which they keep sheep profitably. Surely, if they can make it a source of profit there, we can make it doubly so here.

The grazing business has always been a popular and lucrative position of farming operations, and go where you will, wherever you see farmers turning their attention to the raising of stock, you will see thrift manifesting itself at every step. It requires a less amount of hired labor, which too frequently eats up the farmer's profits, and less hard work for the farmer himself, as well as the female portion of his family, while it is more profitable and requires less hard work, the employment

affords occasional hours of leisure, to enable a man who has horticultural taste, and a suitable amount of pride, (and a man who has neither, is not fit to be a farmer,) to beautify his place in various ways, at a very trifling expense. That should be done to the fullest extent possible, by every man who has a home. It is due to those who are near and dear to him. It makes happier others if not himself. It makes home more attractive to all, and wins us away frequently from places of resort, not calculated to promote our peace, happiness, and domestic comfort.

Every hour spent in adorning and beautifying our homes, will tell more in a few years for our prosperity, than months in any other way. A few trees, plants and vines, scattered about the premises, which can be had by any farmer, merely by digging up, will, in a very few years, add immeasurably to the comfort and appearance of the place.

I would have flowers too, scattered about the yard, and a flower pot or two in the window if you please. I never pass a cot, however lowly or obscure, and see a pot of flowers in the window but what I am thrilled with anxiety, to know the character of those who occupy the humble abode — though biting poverty may oppress its inmates, yet there is a cheerful heart there, full of all that is lovely.

Mr. Coleman says: "I would have the piazzas trellised with vines, even with scarlet runners if nothing better can be had. I would have the door yard filled with flowers and shrubbery, the road side lined with trees, here a clump and there a single line mingling the varieties as nature mingles them, cultivating them for fruit and for mere ornament and beauty."

But this is all, you will tell me, for appearance sake. Well, is appearance nothing? Has God given us the sense of sight, so wonderful, so capacious, so infinitely varied in its resources and objects for no purpose? Is appearance nothing? What is more studied throughout nature's works? What object is there in nature, from the highest to the lowest, animate or inanimate, swimming in the sea or in the air, on the surface or buried in the earth, which is not upon examination found to be as beautiful as if it were finished for no other purpose than to be looked at?

Take the shell that lies in the bottom of the ocean, the bird that bathes his wings in Heavens purest light, the flowers that carpet the earth with their varied splendor, the glittering stars that light up the deep arches of the skies with an eternal glory —take the combination of the countless elements of beauty when the morning slowly lifts up the veil of night, and as at the dawn of the creation, reveals the glories of the visible world, or when spring breathes upon the earth and recalls the dead to life in myriads, and myriads of forms of new beings come forth at her voice—take the descending sun as he declines upon his western throne and wraps around him the gorgeous robe of an unrivalled majesty—take the perfection of beauty as seen in a more transcendent form, in man himself, in his symmetrical stature, in the well turned limbs in the web of unrivalled softness and texture which covers him, in the tints of his complexion, in the grace of his movements, in the melody of his voice, in the eloquence of the eye, pouring out the fires of genius or radiant with the charms of the affections, and so speaking to the soul— and will men say that appearance is nothing, and that the pleasures of the sight are not to be valued and cultivated? I say that appearance is always to be regarded; that we cannot render our homes too beautiful and attractive. Do

what we can and all we can, and we shall fall far short of rivaling even the simplest forms and combinations of nature.

The next and last subject to which I shall direct your attention, is the subject of Pomology—the cultivation of fruits. This subject of itself would furnish material for several discourses. I shall content myself with briefly touching upon a few points that will be practically useful to every farmer if he has not already adopted them. There is no subject so full of interest, so replete with instruction, amusement and profit to every man, who has a home, as this. Why it is that it has been so much neglected by farmers, is wholly inexplicable to me—whatever amount of improvements a man may have—however extensive his fields of golden grain, or meadows of waving grass as though he may live in a palace, if he has no orchard of apple trees and no fruit of the various kinds about his premises, he has no home to charm me. A twenty acre tract of land, with a small cabin, and all these things about it, is an Eden compared to it.

I have given the subject of Pomology no inconsiderable attention for many years and consider myself as yet a novice in the science. I attended the first Pomological convention ever held in the United States. It assembled in 1848 at Buffalo, and was represented by fourteen States, all of which, except Indiana, exhibited specimens of fruit. It pained me to think that our State made no show at that convention It was not because we had no fruit here—for we have it in abundance equal to any presented for exhibition, superior in appearance to most of it. I examined all the leading varieties from different States and heard the merits of each fully canvassed as to their success in the different localities, and left with the full conviction, which subsequent investigation has confirmed, that no State in the Union has a better soil and climate to produce fruit of all kinds in greater perfection or more abundantly than our own. But our fruit growers, not even our nurserymen, felt interest enough in it to attend, nor have they ever yet, so far as I am advised, notwithstanding it is held every year, and from which they would attain more information, than in a lifetime, from all other sources.

The first thing a man should do when he breaks the forest after he builds his cabin and gets ground enough cleared for the purpose, is to set out a small orchard. He will not loose the use of his land for any of the purposes of cultivation, and in six or eight years he will have an abundance of fruit for his own use and some to spare; and in as many more years, from an orchard of a hundred trees, he will realize more money than from all the balance of his farm—provided he is careful in the selection of his fruit. A few early summer and fall apples is very proper; but the main crop should be winter fruit—such as are of good quality, fine size, and showy appearance and long keeping varieties, and of a variety that the trees bear when young, abundantly, and every year. More will be realized from *ten* trees of the right sort, than from fifty, such as are found in most of our orchards of grafted fruit, and commonly considered first rate. To go into detail in regard to the merits of different kinds of fruit I shall not attempt. It would occupy too much time and not suited to this address. I will make a single remark, however that may be of some service. Many persons appear to imagine that the greater the number of varieties, the better and more valuable the orchard, and accordingly in setting out a hundred trees they will have perhaps fifty varieties. This is a most egregious error.

I have said that in six or eight years after setting out an orchard, a man can have apples for his own use and some to spare; but this is upon condition, that they are well put out and well taken care of. They must not be set out as if they were fence posts, as is too frequently the case and not cared for ever afterwards, except to be abused in various ways, which it is unnecessary to enumerate.

Seven years ago last spring I set out or caused to be set out two hundred apple trees on my farm. It was sod ground, and holes were dug just large enough to admit the roots. It was a very favorable season and most of them survived the summer. The ground was plowed the following fall, and has been under plow most of the time since. The trees have been regularly washed with soapsuds once a year. They have grown but little most of them, and many of them have died —all owing to their being badly set out, and from which most of them will never recover. Four years this fall I set out five hundred more, of about the same size, in the same orchard. I plowed the ground well and harrowed it thoroughly before setting out. The result is that the trees last set up lived and are now much the largest, having grown more than twice as fast, and I am well convinced, that when ten years old they will be twice as large as those first set out, and bear a fair crop of fruit. I mulched some of the trees with straw greatly to their benefit—hoed them as if they were hills of corn, but never watered.

My method of preparing the ground and setting out an orchard, although not wholly original, but being quite different from that usually adopted, so far as my observation goes. I give it for the benefit of those who may think proper to adopt it. The ground should be thoroughly plowed and harrowed; then mark it out both ways, the same as for corn, (except to furrow as deep as the plow will run), two rods apart. The trees should be set in the crosses, as in planting corn, except that I plant only at every alternate crossing of the furrow—thus, while the rows are two rods apart each way, the trees are four rods apart in the rows. This makes the trees equidistant, and occupies the ground to much better advantage for an orchard by being able to put many more trees to the acre than the method usually practiced, and still have them the proper distance apart. After the trees are set out harrow down the ground thoroughly, filling up the furrows entirely, so that no water will stand in them to the injury of the trees; then, if set in the fall, run a few furrows through the orchard with the plow, to carry off the surface water, if any there should be, during the winter. Next spring plow the ground again and plant potatoes, that being the best crop suited to a young orchard. Wash the trees with soapsuds every spring. Keep the knife out of the orchard, (which some persons use so dextrously to the great injury of the trees,) except to cut off sprouts and dead limbs, or such as rub or injure the tree, and in five years a fair crop of fruit, if nothing unusual occurs to prevent it, may be expected.

In addition to the apple orchard, which is the staple fruit, and which is properly a part of the products of the farm, the fruit garden must not be neglected. A few trees of the pear, peach, plum, cherry, nectarine, apricot, quince, grape, and smaller fruit, may suffice, but they must not be omitted altogether. Add to them as you please; but a few of them you should have as soon as opportunity and circumstances will permit, if you desire to make your homes pleasant, comfortable, and cheerful. These things cost but little in the first instance, add immeasurably to the enjoyments of life, and the value of the property they so *tastefully* adorn.

E. D. Mansfield, Esq., in an address delivered before the Cincinnati Horticultural Society, in 1850, gave a history of fruits, grain, &c., which will be appropriate and full of interest to be introduced here; he remarked as follows:

"If one could write the history of the migration of plants ever in modern ages, it would be one of the most surprising, instructing, and entertaining chapters ever written. It would show the fruits and flowers emerging, like man himself, from central Asia—following the Euphrates, the coasts of Arabia, and the isles of the sea—pursuing the footsteps of civilization—taking new hues in new climes, and, like man, improved by colonization and culture. We would see in a later period the new world rendering back its tribute to the old. We would find the plants and flowers which were native to the Potomac, the Mississippi, and the Amazon, filling the gardens of Europe with new bloom, and feeding millions who but for them could never have lived. And we may see in this returning tide of products from the new world, a symbolical representation of that tide of light and liberty which shall flow from this western continent to the land of the orient.

"The apricot is a native of Armenia. The plum, although found wild in this country, is supposed to have originated in Asia; one variety, the damson, took its name from Damascus, a Syrian city. The peach is a native of Persia, whence it spread over Europe and this country. The nectarine is also a native of Persia, introduced into England in the 16th century. Cherries are said to come from Cerasus, a city of Pontus, whence Lucullus brought them during the Mithridatic war. They extended wherever the Romans spread their arms, and were introduced into England in the first century.

"The apple, quince, and the vine, are natives of many countries, and it is not known that they belong specially to any one. This review, however, shows that some of the finest and most delicious of all fruits originated in Persia, Armenia, and other parts of Asia, whence they have been transplanted, naturalized, and improved, by culture and the auspices of civilization.

Let us look a little farther into the more important branches of agriculture. How stands the origin and propagation of the grains and grasses, by which men and animals are sustained?

"Prior to the 15th century, barley and wheat were almost the only grains in use, through Europe or even Asia. All the most important articles of vegetable food known to our day were unknown prior to the 16th century.

"The maize, or Indian corn, is a native of America, unknown to Europe or Asia until introduced from this country; yet in the course of two or three centuries it has been introduced throughout the old world wherever the climate is not too cold. The potato, another article of vegetable food, originated in America, and probably the most universal article of food used.

"Buckwheat is a native of northern Asia, and is not a cereal plant, although classed among them. It was introduced into France in the 16th century, and soon became the food of the common people.

"The duration of the germinating faculty of some seeds is almost incredible. Barley has grown when planted 140 years after it was gathered. Wheat taken from the catacombs of Egypt, and which probably grew in the time of the Pharaohs, has been sown, sprung up, and began its life anew, thousands of years after it was ripened and gathered.

"But so, in its turn, death follows upon life, in the vegetable as well as the animal world. The leafy forest, the verdant shrubs, the blooming flowers, each lofty tree, each humble plant, must bow their horns low. Nothing lives on this earth exempt from the doom of mortality."

Thus, while this field of nature is full of warning and admonition, the daily contemplation of the lovely scenes around us, socialize our feelings and enhance our pleasures in the morning of life, while it adds new charms in advancing years, and in the decline of life, carries the mind upward and onward in contemplating the scenes of a brighter and better world.

I have thus hastily alluded to such matters as have occurred to my mind that might be of interest and useful in their application. If I have said anything that will tend to advance the cause of agriculture in any of its branches, I am abundantly compensated. We have seen that ours is a high, noble, and an honorable calling, and "if there is a man who can eat his bread with God and man, it is the man who has brought his bread out of the earth. It is cankered by no fraud—it is wet by no tears—it is stained by no blood." It is a calling that now rallies around it the support of the brightest intellect and the enterprise of the age. *Onward* is the watchword—*success* the motto—whilst we will ever keep in mind that

> "Honor and shame from no condition rise,
> Act well your part, there all the honor lies."

ADDRESS

Delivered before the Third Annual Fair of the Marion County Agricultural Society.

BY JUDGE SAMUEL E. PERKINS.

The ancients believed that Ceres, the goddess of corn and harvests, first instructed men, before subsisting upon roots and acorns, in the arts of agriculture—taught them to plow, to sow, to reap and to make bread. For the vast benefits thereby conferred upon mankind, they manifested towards her the most unbounded gratitude—built splendid temples, and performed costly sacrifices in her honor, and held numerous festivals, at which the choicest productions of the year were brought forth and consumed.

Not in honor of a pagan deity, but as an incentive to gratitude to the giver of all good, as an evidence of your appreciation of the importance of agriculture and the mechanic arts, as a stimulus to exertion in their improvement, and as a matter of gratification to all classes of the community, you, gentlemen, farmers and mechanics of Marion county, are also holding this, your annual festive fair, at

which the select productions of the season, in your respective departments, are exhibited for public examination and admiration. And we, the people of all trades and professions, are here to witness and enjoy the spectacle, and tender you our congratulations. And why should we not be? Are we not all deeply, vitally, interested in the success of agriculture and the mechanic arts, the two great sources of public wealth and prosperity? Is it not from these that we are, each and all of us, fed and clothed, and housed — that we derive almost all the personal comforts which we experience?

Gentlemen, so long as people live by eating, it will continue to be very gratifying to them to behold grand exhibitions of beef, of pork, of flour, and of fruits. And, gentlemen, the display made upon this occasion, of your various productions, is, notwithstanding the year has been unpropitious, most highly respectable and gratifying. It speaks well for the variety, ingenuity, and skill of Marion county mechanics, for the thoroughness of some, at least of Marion county farmers and stock growers, and for the productiveness of Marion county soil. And it is due that I should add, that the specimens presented, of the handiwork of the ladies, demonstrate the gratifying fact that machinery has not yet driven household industry from our borders; and that those arts, which the necessities of earlier days called into so general requisition, are still successfully applied in hours that might otherwise be those of idleness.

Gentlemen, manufactures have made wonderful progress in this county, and particularly in Indianapolis, its chief city, within the last five years. Indeed, they have almost all sprung up within that period. Suppose a fair had been held in this county eight years ago, what specimens of our own manufactures could have been exhibited?

We had not then what could be properly called a machine shop, in the county. I think friend Underhill's pioneer establishment did not aspire, at that time, to so high a dignity. In 1848, that now owned, and operated upon so large a scale by Messrs. Hasselman & Vinton, was established; and in it, in 1849, the first steam engine ever put up in this county, at all events, from castings made here, was constructed. What have we now? Five iron foundries and machine shops, (the fifth having been put into most successful operation this season, by Messrs. Wright & Benson), from which great numbers of the most perfect engines, threshing machines, stoves, and various other articles, are yearly turned out; one brass foundry, two boiler and chimney factories, several steam cabinet ware and chair factories, door and sash factories, numerous coach factories; in short, including saw-mills, woolen factories, oil mills, starch factory, flour mills, peg and last factory, car factory, barrel factory, lath and shingle machines. &c, &c., we have between sixty and seventy establishments in the county, propelled by steam and water.

I should have been glad to have ascertained the exact number, but had not time. I presume our active, efficient, Board of Trade, will do it this fall. In addition to those above enumerated, we have most excellent establishments filled with workers in tin, brass and copper, saddle and harness, boot and shoe, and clothing manufactories, and divers others too numerous to mention, though not undeserving of notice.

The central position, and railroad facilities of Indianapolis, indicate for her the destiny of a great manufacturing city, and liberality on the part of her capitalists

toward her enterprising mechanics, cannot fail to make her such. There should be immediately added to the existing list of establishments, a locomotive and an agricultural implement manufactory, and then, I think, all others necessary would naturally spring up of themselves. Stock in such enterprises, like that which grazes in the pastures of the farmer, would pay better and be a much safer investment, than the fancy stocks of the day, in which some of our capitalists have been disposed to deal.

We ought, at each succeeding fair, to present the best display, in the mechanical department, of any county in the State; and it will be a reproach to the public spirit of our mechanics if we do not, provided they are fairly encouraged in the distribution of premiums.

But gentlemen, I shall not dwell on this branch of our subject. Mechanics, as a general rule, need much less said to stimulate them to exertion than do farmers. The mechanic invests his capital and commences business, not for the purpose of fabricating articles to supply his own wants, but to construct such as he can sell to the public, and thus procure the means of subsistence. He must, of necessity, therefore, exert his skill to produce an article that shall receive the approbation of the public, upon whom he is dependent; and he must do this in competition with the hosts of others who are taxing their ingenuity to excel in the same line of business. Hence, the mechanic, if he has in him the energy and intellect of a man, will scarcely fail to exert himself to his utmost capacity.

Not thus is it with the farmer. He is more independent, so independent, indeed, that he can be a careless, negligent, non progressive farmer if he pleases, and still live, coarsely, slovenly, it may be, but still live. He owns the soil, it is productive; it will almost send forth spontaneously, at least during his day, a supply for his necessities. He drops the seed upon the ground, turns his hogs and cattle to graze, his cow meets the milkmaid for her morning and evening mess, and with little further trouble or care, a sufficiency of bread and meat, and material out of which the women manufacture necessary clothing, is supplied him; and what cares he for public approbation or disapprobation of his course? At the same time, he honestly, perhaps, believes that nothing can be done to improve upon his system of farming. A great mistake. Something can be done to improve upon his method, and upon the method of every other farmer. The art of agriculture is progressive, as well as other arts, and is yet far from perfection.

And here let me say that the time has come when an improved system of farming must be, if it is not already, practiced in Marion county. The density of population, and the high price of land and produce, are not yet such as to require or justify the introduction of the expensive system adopted in Great Britain; but no longer will answer the method of the pioneers who came here, not to practice agriculture themselves further than to obtain a subsistence, but to procure the right to the land, to fell the forest, open farms, live lives of hardship, and die, in order to transmit the rich inheritance to us, their children and successors, that we might improve, beautify, and enjoy it, with all the advantages of independence and cultivated life.

The days of early simplicity, of backwoods enjoyment and suffering, of log cabins, log rollings, wooden trenchers, linsey-woolsey clothing, coon skin caps, cow-path roads, exclusive horse-back and ox-wagon traveling facilities, destitution

of a market for surplus produce, and isolated living, with bare-footed girls in the clearings, and corn and potato patches, are passing, have indeed mostly passed away in Marion county; and in their places are come handsome residences, surrounded by neatly fenced yards, adorned with walks, evergreens, fruits and flowers, and having richly furnished parlors, China and silver ware, clothing of silk and broadcloth, beaver and silk hats, turnpike, and plank, and railroads, handsome carriages, a large and growing city, furnishing a ready and steady cash market, neatly dressed children, with arms laden with books, wending their way to school, or perchance, if young ladies, singing to the music of the piano in the parlor. I say these changes have taken and are taking place. Whether for the better or worse, whether bringing a greater degree of happiness or otherwise, to the people, I need not intimate.

It is a disputed point with some, even, whether savage or civilized life confers most enjoyment; though the latter would seem to be most in accordance with the dignity of human nature, and most promotive of its elevation. But it is enough for my present purpose that the change mentioned is taking place, and cannot be arrested; for, as a consequence, an improved, careful, neat, laborious system of husbandry, is absolutely necessary to enable the farmers, by increased harvests, to meet the enlarged expenses incident to the new order of things; and he who fails to adopt such, will find himself gradually descending upon a sliding scale.

And here the question presents itself, what improvement can the farmer make—what can he do to increase the annual production of his lands?

There are some things, I admit, that he cannot do. He cannot control the seasons. He cannot prevent the vernal and autumnal frosts from sometimes unexpectedly nipping his crops. He cannot control the weather. The destructive hurricane, tempest, freshet, he cannot avert. And when the drouth comes and parches his fields and withers his crops, he has no alternative, as the present season has sorely admonished him, but to submit. Some modes of operating the ground may mitigate, but cannot prevent the evil.

I know that science has made great strides in mastering the powers of nature. I know Franklin was able to guide the lightning in a designated pathway to the earth, (though, we may remark, it still makes an occasional random shot at some of our houses and barns, regardless of Franklin's conductive); and I know that another name of some scientific celebrity has asserted that he will enable us to control the shower and sunshine; but, gentlemen, God is very jealous of too close a scrutiny, by mortals, into His mysteries. He would not permit the tower of Babel to reach unto heaven; and I much doubt whether He who has said that He "rides upon the whirlwind and directs the storm," that He sends early and the latter rains, and the dews, to fertilize the ground, will surrender the authority over this matter to Espy.

Nor are our farmers unlimited in the choice of plants and animals which they shall grow. Situated in the temperate zone, they can only cultivate such articles as are adapted to this latitude. As a general rule, it would be wasted labor and money that should be expended in attempting to naturalize here plants and animals of the tropical or polar regions. But the farmer can, from the circle of the globe, in the latitude in which he lives, select the best varieties, the most profitable of plants and animals, to place upon his farm; and the numerous exploring

expeditions of the day are bringing to his knowledge all that exist. Something may yet be accomplished, much has been accomplished, in this way; though it seems probable that no very great additions will be made in this respect, and that Indiana's staples will continue much as they now are.

A large portion of the plants and animals now grown and cultivated, by farmers in the United States, have been naturalized here from foreign countries. The earliest discoverers and settlers of the country commenced shipping them from Europe. Of plants, I need but mention, as examples, rice, cotton, sugar-cane, and wheat; while we, in turn, have sent the potato and Indian corn to Europe. As to domestic animals, I might almost ask what one kind now grown here by farmers was not imported? What animals were found in America on its discovery? I leave the question for you to answer. It will furnish you agreeable and profitable amusement. Also, what fruits?

The farmer can also ascertain the best time and manner of putting in crops; the best time and manner of harvesting them; the best manner of preparing the ground to receive the seed. He can ascertain whether it is best to plow deep or shallow, and what soils, the one way or the other; the character of his soils, and the crops and manures best adapted to them; whether a rotation of crops is advantageous, and what crops should be interchanged; whether some crops are more exhausting to the soil than others, and which they are; he can procure the best farming implements, and he can do many other things, of great importance to his success, which I have not time to enumerate; and he can labor, labor, in the cultivation of his fields, in stirring the ground, in rooting out the weeds, keeping clean the head lands, securing his crops by sure fences, and in properly attending, in all things, to his growing grains.

The thrifty farmer's life is not one of idleness and ease. It forms no exception to the general rule governing us all, that by the sweat of the brow we shall eat bread. Such has been the experience of the world.

The ancient heathen world, impressed with the truth, declared that "Father *Jove* himself willed the ways of tillage not to be easy, and first commanded to cultivate the fields by art, whetting the minds of mortals with care." Thus must the farmer's mind be exercised. He must think, study, read. He must apply, continually, mental to the physical processes going on around. He must be a constantly growing intellectual man.

We here arrive at the important question, the pith of the whole matter. How is the farmer to learn what are the best plants—the best kind of stock to grow? What the best method of tillage? How should he ascertain what breed of cattle will furnish the most beef, and hogs the most pork, at the least expense? What sheep the most in value for wool and mutton? What wheat will be the surest to withstand insects and all accidents to which the growing crop is exposed, and yield the greatest number of pounds of flour?

The Romans believed that flax exhausted the soil. Virgil, in describing ancient agriculture, in the first book of his Georgics, says, "a crop of flax burns the land;" and the idea continues to prevail to this day. How shall the farmer determine if this be so or not?

Some answer: Establish an agricultural college, send the boys to it to listen to lectures awhile, read something on agriculture; hoe a little in a potato patch; get

a diploma, certifying that they are masters of the art of farming; and then let them return into the country to teach such farmers as the Howlands, Pughs, Johnsons, Shimers, Bacons, Beelers, Bakers, Fletchers, and others their equals, the answers to the above questions.

Gentlemen, I will not spend time in exposing so ridiculous a humbug as this. The proposition needs only to be stated to stand condemned. But if I labor under a misapprehension in this matter; if by agricultural schools are meant simply those that shall give a general education sufficient for farmers, including a knowledge of geology and chemistry, then I should hope all our schools would fall under the denomination. If they will not, surely we are paying our money in supporting them in vain.

The farming class constitutes the great body of our population; and if we have thus far had a system of schools, academies, and colleges, not adapted to their education, it does seem to me to be time for us to revolutionize it, and make the schools we have competent to educate our agriculturists, the mass of community. If, however, by agricultural schools be meant such as are intended to attempt to teach the art of farming, I pronounce them comparatively useless here. In countries where there are no other free schools, such schools are to be prized as furnishing a means of education to some extent. Hence the value of these schools established by government in Ireland.

I have sometimes thought that perhaps a farmers' medical college, to teach the veterinary art, raise up some horse and cattle doctors, might be of service; but when we reflect that probably less of these animals now die of disease, in proportion to their numbers, than do of the human family, with most skillful physicians, (a profession highly respected and often patronized by me), doubt arises even as to this. Perhaps, however, it is to be considered that the indulgences and vices growing out of civilization, multiply and aggravate diseases among mankind.

Gentlemen, to each and all the questions above propounded, and to every other that can be asked touching any mooted point in the practice of husbandry, my answer is, *settle it by an experiment.* Closet theory on these questions is not satisfactory.

Do you wish to know whether drilling in wheat or sowing it broadcast will be attended by the better crop? Try the experiment. Would you know whether poor Richard's maxim, "plow deep while sluggards sleep, and you'll have corn to sell and to keep," be true or not? Try the experiment. Do you desire to be certain whether it is better, more profitable, to cultivate less land well or more land slovenly? Try the experiment. Do you wish to learn what crops and manures are best suited to particular soils? Try the experiments On this point something may, perhaps, be accomplished, by obtaining from a chemist, which you can easily do, an analysis of your soils, thereby learning the ingredients of their composition, and the character of the food they can supply to vegetation.

But in the language of Coleman, in his "European Agriculture," the attempted application of chemistry to agriculture "cannot as yet point to very many positive practical triumphs." And again: "One of the most eminent agricultural chemists of the present day, Bonsingault, second perhaps to no other, has said, (Rural Economy, Law's edition, p. 266), "A great deal has been written since Bergman's time upon the chemical composition of soils. Chemists of great talents have made

many complete analyses of soils noted for their fertility; still, practical agriculture has hitherto derived very slender benefits from labor of this kind. The reason of this is very simple: the qualities which we esteem in a workable soil depend almost exclusively upon the mechanical mixture of its elements; we are much less interested in its chemical composition than in this; so that simple washing, which shows the relation between the sand and the clay, tells, of itself, much more that is important to us than an elaborate chemical analysis. Other eminent chemists might be quoted to prove the little value at present attached to what I will call chemical farming. Time may work a change.

Gentlemen, there is in fact, at present, but one way in which you can make progress, make improvement, in the art of agriculture. It is the only way in which any progress has ever been made; it is a straight, simple, easy way, one that all can walk in; it is, make constant experiments, note the results, draw the correct conclusions from those results, and practice accordingly. At the same time fail not to avail yourselves of a good agricultural paper, from which you can learn the experiments, and the results, of your brother farmers. This is scientific farming.

What is science? Lord Brougham says, "it is systematized knowledge." it is general conclusions deduced from the observation of particular facts. It is by the observation of such facts that science is made; and there is no more favorable place for such observation than the fields, the great natural laboratory of the farmer. Newton observed the falling of an apple. Hence the science of gravitation.

Take a very simple example as an illustration of the principle. In a late number of the "Farm and Shop," Mr. R. Mayhew communicates the result of an experiment in putting in oats with a drill. It appears that his crop, so put in, greatly exceeded those of his neighbors, which were sown broadcast. Now this simple incident does not prove the general proposition that oats should be put in, to secure the best yield, with a drill, because some other circumstances, in this instance, may have exerted the favorable influence.

But suppose Mr. Mayhew repeats the experiment next year; suppose twenty of his neighbor farmers adopt this method as to a few acres of no better soil than are sown broadcast; and suppose, in all these cases, drilled in oats turn out much the larger yield; now, perhaps, every one would be willing to assert the general truth that oats put in with a drill, that is sowed in rows, (for that is the idea), will yield a much larger product than if put in by the old method.

So in regard to every other question, every other crop, every other practice. Experience is the great agricultural school, the great teacher. I have thought that every farmer in the county should annually devote a few acres as a little experimental farm—try experiments and record them—that this agricultural society should appoint a committee of one or more, with pay for the service, if necessary, prior to its annual fair, to visit the farmers of each township, collect the results of these experiments, with the general condition and progress of farming, and arrange all into a report to be made at the fair.

What an amount of knowledge would thus be communicated! What an interest added to the annual exhibition! What a stimulus to exertion would be such an appeal to the farmer's honorable pride and spirit of emulation! If these experi-

ments could not thus be collected, they could be made known through the medium of the agricultural paper, the "Farm and Shop."

There is one idea more which should enter prominently into the thoughts of our farmers, which they should remember when they lie down and when they rise up, when they labor in the fields and when they rest, which should be written upon all the gate posts of their domains, and that is, to keep up the fertility of their soils

If I had the power to pronounce a single sentence with such force that it should never cease to reverberate upon the ears of Marion county farmers, that sentence should be, *preserve undiminished the fertility of your soils.*

Gentlemen, everything hastens to deterioration and decay Life itself is but a ceaseless struggle with the tendency to death. The various kinds of grain you cultivate will deteriorate unless you annually select the best portions for seed. Your stocks of cattle and sheep, and hogs, will dwindle to a comparatively diminutive size without your constant efforts to improve them. Your farms will become sterile in the absence of exertions to preserve the fertility of the soil.

Nineteen hundred years ago a Roman wrote: "I have indeed seen many sowers artificially prepare their seed, and steep them first in nitre and black lees of oil, that the produce might be larger in the fallacious pods. And though to precipitate them they were soaked over a slow fire, selected long, and proved with much labor, yet have I seen them degenerate, unless human industry with the hand culled out the largest every year. Thus all things, by destiny, hasten to decay, and gliding away, insensibly are driven backwards: not otherwise than he who rows his boat with much ado against the stream, if by chance he slackens his arms. *is instantly gone*, and the tide hurries him headlong down the river."

Without going farther from home for examples that bad husbandry, long continued, will ruin the best of soils, let me simply refer you to the condition of much of the land in the southern States, in the New England States, and in parts of New York. I myself have assisted to sow and reap upon some of the worn out fields of Franklin county, Massachusetts, crops of rye, which under no circumstances, without manure, yielded over five bushels to the acre, where once were produced forty.

The farmers of this county are fortunately situated. They are possessed of as good a body of land for agricultural purposes, all things considered, as exists in the world—rich, well timbered, well watered, and convenient to market. It was received from the native red men unexhausted. Thus it should be transmitted to the next generation.

You, gentlemen, who now occupy it, are but tenants for life. Do not commit waste. Do not rob your children—posterity. Transmit your lands, with your political institutions, unimpaired. This you can do by careful farming, rotation of crops, periods of rest for fields, frequent manuring, and such other modes as farmers are, or by experiments may become, more familiar with than I am.

Exhausted soils, by expense enough, can be restored. Therefore, I think, with little care, good ones can be preserved. There are two other topics, remotely connected with our subject, to which I wish to make a brief allusion on this occasion, when so many of the ears of the county can be reached

Gentlemen, perhaps no one of the populous counties of the State has worse roads than ours, while none should have better. I desire to see every highway in the county a free turnpike or plank road. How could a portion of the surplus money of our people be expended in a way more calculated to promote their comfort? Such roads would greatly facilitate and increase the intercourse between city and country. Farmers and their families could then, at all seasons, come speedily and pleasantly to town, on business or for pleasure, without wear and tear of horse flesh, and broken wagons and carriages to be repaired at much cost, and without carrying rails to pry out of mud holes withall. The pent up denizens of the city would often leave its dust or mud, and smoke, and take recreation and enjoyment in pleasant drives among the cheerful possessions of the farmers. The stranger who visited the capital of our State, and wished to see something of the country around, could do so with pleasure and a favorable impression. Many other considerations might be pressed, but I must hasten on. How this improvement of our roads is to be accomplished, whether by the agency of the county, or otherwise, is not for me to say. Only let it be done.

Health, gentlemen, is the great blessing of life, and we all earnestly desire to enjoy it. Whatever, therefore, will contribute to that result, we ought cheerfully to undertake and perform.

Now, we have a somewhat level county of land. Our streams, when low, become sluggish. If obstructed, they stand in stagnant pools, on which fever and ague breed, and from which the seeds of disease and death are borne by the breeze far and wide among our people. This evil can be remedied. Let the drift-wood and all obstructions be removed from these streams. In many cases, if a single log that wedges others were removed or cut asunder, the next swell of the stream would bear the whole away. Let their channels be straightened, and let all the low places in the county be drained, that we may have a pure and salubrious atmosphere, and then will health prevail.

Gentlemen, I have done. I have attempted in this hastily prepared address, not to instruct you, for to do that I am not able, but to induce you to think upon the topics on which I have touched; and I have called your attention to the last two because I wish that every thing may be done that can be done to make our county the happy home of a great and prosperous population.

ESSAY ON GROWING ORNAMENTAL SHRUBBERY.

BY R. A. RILEY, OF HANCOCK COUNTY.

About the 10th of April, 1855, I planted in my door yards, the following description of shrubbery:

2 cedar, 3½ to 4 feet high.
2 white pine, 3 feet high.
2 yellow or long leafed pine 4 feet high.
5 Norway spruce, 3 to 3½ feet high.
4 fir, 3 to 3½ feet high.
7 fir, 2 to 2½ feet high.

I was not particularly instructed, nor had I any practice in planting and growing shrubbery of the kind, I therefore chose to copy nature as nearly as practical. I dug a hole sufficiently wide and deep, to straighten the roots, and set the shrub from one to one and a half inches deeper than it had formerly grown. I then placed it in, straightened the roots, and carefully filled in clayey earth, obtained at from six to ten inches below the surface, corresponding with that in which the roots naturally grow; having filled the hole about two thirds full, I poured in a sufficient quantity of water to make the ground quite soft, and settled it well around the roots, I then filled up level with the surrounding surface, pressing it lightly and smoothly.

I adopted the same process with all. Put no sand, gravel, loam, or manure of any kind about them. In dry weather, for the first three or four months, I watered them every two or three evening, sprinkling the water upon the tops, and letting it run to the roots. The result is that every one of my shrubs have grown thriftily, from two to ten inches in height, being to all appearance but little stunted, or injured by transplanting. Some I trimmed about the last of spring, others I did not. I have noticed no difference in the growth between those trimmed and those untrimmed.

I have heard so much complaining of the difficulty of getting shrubbery to grow in this part of the country; and believing that the best way of cultivating the *taste* and *affections* of our children,—preparing them for prosperity, goodness, and greatness, is by beautifying and happyfying our *homes*. I have therefore told the public how I have planted and watered those pretty trees, and how beautifully they have grown. They may do likewise, and with like success, I doubt not, if they choose.

ADDRESS

Delivered before the Marion County Agricultural Society, 1855.

BY DR. A. C. STEVENSON.

Times of rejoicing are common to all people. It is good to cultivate joyous feelings. The heart is thus made better. We rejoice at the commencement of the new year. Christmas is hailed with warmest rejoicing. Our national birth-day is one of universal gladness to our people. The beauties of spring are hailed by the rejoicings of May-day. "Thou makest the outgoings of the morning and evening to rejoice."

If these fairs which are now rapidly extending themselves to every county in the State, were merely intended as days of rejoicing and public thanksgiving to God, for the abundant harvest of the year, they would be amply justified in the remembrance of our constant dependence upon the power that directs the seasons, and gives to us a seed time and a harvest.

The causes of gladness to you, gentlemen, are abundant on every hand. This rich valley of the Mississippi, in its length and breadth sufficient for a mighty empire, is unsurpassed in beauty and fertility. Upon its southern border is found the indispensable articles of sugar and cotton, and the rich fruits of the tropics. Whilst in its northern portion is produced in great abundance, those cereals from which bread is made — wheat, rye and corn.

This great valley, without an inequality sufficient to be called a mountain, contains 1.237,311 square miles. In territorial extent, more than equal to the whole of Austria including Lombardy, and France including Corsica, Great Britain and Ireland, — the British Islands and Malta — Prussia — Spain and the whole of the Turkish Empire, including Servia, Wallachia, and Moldavia.

Nature here has been profuse in her rich gifts. Here are boundless forests of the most useful timber. The oak, hickory, walnut and poplar, the sugar maple, the ash and elm. The material for building and fencing and all the useful purposes for which timber is required, is supplied in great abundance.

Those noble forests inspire us with delight, and teach us to reverence the hand that planted them. Here his praise is being constantly hymned by a thousand warbler voices.

To render this beauty more visible, it is contrasted by immense plains of the most fertile land, and in immediate proximity overgrown with luxuriant grasses — fields and gardens with blooming flowers, and brooks of running water. "And thou shalt be like a watered garden, and like a spring of water, whose waters fail not."

In the midst of this valley flows the father of waters. The Mississippi, in its length extending from north to south 3,000 miles, or from the head of the Missouri to the Gulf of Mexico, 4,490 miles. Seven large rivers discharge their waters

into this stream. Some of these tributaries measure above two thousand miles in length.

The great *architect* seems to have reserved his mightiest works for the new world, that the majesty of his creative power should be fully made known in his finishing work.

When these forests shall have been removed, to make room for cultivated fields and gardens, when cities and villages shall have spread themselves out in all directions, when man shall have occupied every spot upon which he can subsist, still ample provision has been made, for all future wants. Fuel will be supplied from the inexhaustable beds of coal beneath us. From the same quarter will be furnished the materials for building and fencing — clay, stone, and iron. In all the essentials of human subsistence there is to be no want. Richly has all things been provided.

The first settlements in the valley of the Mississippi are so recent that they are within the recollection of very many now living. The first State Constitution was formed in 1799, and is only fifty-six years old, and there is already here a population of at least 9,000,000.

Such a vast population has probably never been poured into any country in so short a time before. The hunting grounds of savage life has been rapidly changed into the cultivated fields and gardens of civilization. Where the buffalo roamed now feeds the quiet ox. The lamb securely rests where but shortly prowled the stealthy wolf. The antlered tribe have fled at the approach of the swifter sons of Godolphin.

A few remnant tribes upon our borders are all that are left to remind you of the numerous nations that occupied before you. Rude mounds of earth are the only works of art left to perpetuate their memory. Where but a short time since stood a few scattered wigwams, occupied by forest warriors, now is seen cities and commerce, and a happy people blessed with the arts of civilization. The light bark canoe of the red man that once plied on those beautiful rivers, has vanished at the approach of the mighty crafts of civilization, driven by the resistless power of steam.

Like the mists of the morning before the approach of the sun, have those rude tribes vanished before the higher civilization that displaced them.

It is, indeed, but a small tribute to the bountiful giver of so much good, that we meet together to be joyous but once a year, for such a home, for such a land as this.

And I may say to the farmers of Marion county, that in all this great valley, there is no portion of it superior to the country that surrounds your beautiful city. No traveler has looked upon it without admiration. As often as I have been here, I have always found new delight in beholding it. Forests affording ample shade, yet not shutting out the sun from the grassy fields beneath. A soil so fertile that the pelting rain is drank up like the morning dew, and appropriated to the wants of vegetation.

Fields of wheat, and corn, and oats, meet the eye on every hand. Orchards of choice apples and peaches, and pears and cherries, and plums, are constantly in view. Whilst a host of smaller fruits crowd every garden spot.

And here before us to day, are specimens of the productions of those fields and orchards and gardens, and here too are representatives of the herds and the flocks.

In viewing these evidences of skill and industry which we have here on exhibition, and when we think of the immense toil requisite to the construction of the agricultural improvements of the country, we are naturally led to think of those who have performed this great work.

As when the hive has been examined, and the exquisite workmanship of the comb displayed, and the delicious honey tasted, and have seen the immense stores that the workers have laid away, the mind is naturally led to inquire concerning the wonderful insect that has performed it.

So much has been said on an occasion like this in regard to the education of farmers, that the inference is almost irresistible, that they are deplorably ignorant. A great error prevails in regard to the knowledge of laborers generally, and especially in regard to the knowledge possessed by the agricultural classes. The belief is very common, that in knowledge they are very much inferior to those who belong to the learned professions. The knowledge possessed by many creditable scholars is frequently quite limited and confined to particular branches. A respectable physician may know nothing of law, and the lawyer may know very little of medicine and both are apt to know still less of theology, and either might take the potato vines for tomatoes, or the peas for beans, as once happened to a friend of mine of very respectable acquirements.

It is not an acquaintance with particular things, or the acquirement of certain branches that should entitle one to be distinguished as learned. To know the names of the planets, is no more than to know the names of as many varieties of potatoes, and knowing the one would just as much entitle to the appellation of learned as the other. Knowledge is but the "clear and certain perception of that which exists, or of truth and fact; the perception of the connection and agreement, or disagreement and repugnance of our ideas."

Betty's ability in the kitchen, to apportion the flour, butter and salt so as to make good bread, entitles her to as high a rank in the arts, as does her mistress' ability to so ply the chords of an instrument as to make harmonious sounds. And the knowledge to make bread is as much science as the knowledge to make harmonious sounds.

Nor does the manner of obtaining knowledge, alter its character. The knowledge to restore a diseased limb to health, may be obtained by a course of studies at college, whilst to change the top of the sour crab into a top bearing the most delicious fruit, by grafting, may have been learned by observation in the nursery. The one is as much knowledge as the other, and entitles the possessor as much to the title, *learned.*

I know that it is said by many that the definitions and nice distinctions of the law, and the subtleties of theological questions, are more difficult to comprehend than those things which belong to agriculture, and are consequently of a higher order of acquirements.

As we are desirous of vindicating the agriculturist from some of the erronous notions that prevail against him, we ask your attention to the farm, to witness his duties, that thereby the mental efforts required may be the better comprehended. And where we speak of agriculture, we mean not to be confined to any of its subdivisions, but in its broadest sense comprehending all who till the soil. The knowledge necessary to perform all the work of the farm is varied and extensive.

Permit me to present you with a small farm of a quarter section only, and travel with me over it, and see if there is anything that requires thought. What is to be the number and size of the fields?

To determine this, the kind of crops to be cultivated must be determined. The rotation to be practised. The running water on the premises will also operate, as may the position of the dwelling and farm buildings. But here are the fences! And who cannot maul rails and lay up a worm fence?

Knowledge is required to arrange the fields, to construct the fences and to make the rails. Again, there is the size and arrangement of farm buildings. To determine the size, the amount of grain and hay to be housed must be calculated, and they must be arranged to suit the number and kind of stock to be housed. The necessary yards, the means of watering and the means of feeding, must also be considered.

But I ask attention to the crops of grains, and fruits, and grasses cultivated upon this quarter section, and tell me what of thought is necessary for the cultivation of each, and what to comprehend the whole. First, indian corn, the most common crop raised: the seed must be selected — to select the good from the bad is important; the preparation of the soil, the width of the rows, the number of stalks to the hill, the manner and time of planting, the cultivation of the crop, and the harvesting.

Again, a number of varieties present themselves. One has a large ear and a large stalk, but ripens late. Another, a smaller ear, a deeper grain, but ripens earlier. One variety has a hard grain, another a soft grain. A large variety will produce but three stalks in a hill, whilst a smaller one will produce four or five. Which of the varieties shall be cultivated? Shall I consult my attorney, priest, or physician? Will some professor of mathematics tell whether a heavy clay or light sandy soil might affect the determination of the question?

The wheat crop is still another crop of importance, but very different from the one just noticed. The preparation of the soil, as well as the time and manner of harvesting, differs from the corn crop. So also of the after treatment and harvesting.

We invite attention to the numerous crops as showing the varied knowledge possessed by the humble occupant of a one hundred and sixty acre farm. After wheat and corn may be named rye, oats, buckwheat, and barley. A long list of cultivated grasses must be added—the peculiarities of each must be understood. To this again add a long list of culinary vegetables, such as potatoes, turnips, cabbage, peas, beans, onions, asparagus, beets, cauliflower, celery, parsnips, pumpkins, radishers, squash, and tomatoes. The habits of each must be understood, that the proper cultivation may be adopted and the proper soils selected. But we have still to remind you of the orchard, with its apples, peaches, pears, plums, cherries, apricots, and quinces, and still a long list of smaller fruits such as raspberries, gooseberries, currants, strawberries, &c. A very imperfect catalogue has been given, but we trust enough to show that the cultivator of a small farm has to be a man of thought. But we cannot stop till the domestic animals of the farm have been alluded to—the horse, the ox, the sheep, and swine. The nature of these must be understood, that the proper treatment and training may be adopted. The individual merit of each must be understood that the proper value may be

fixed, and here the judgment must act. A herd of beautiful young horses are ready for market, in quality differing materially. one from his physical conformation is fitted for the saddle, another with upright shoulder, heavy body and limbs and short fetlocks, is only fit for heavy draft, another for light draft, in consequence of a different conformation, and still another from some peculiarities of structure for speed and bottom. These distinctions exist and determine the use and value of the animal. There is also a spirit within a beast—and that face and eye and countenance may reveal a temper which will unfit the animal for those purposes intended by his physical conformation. Combinations are frequently presented requiring the nicest distinctions. Who does not know the great value of that fine roadster, with temper so kind that the lady and the daughters are perfectly safe upon him; or how utterly worthless is the finest formed horse, with temper so vicious, that he is ready to dash every vehicle to pieces to which he may be attached.

Much skill is also required to determine the value of horned cattle. Their milking qualities should be known not when they are at the pail, but at the time of sale; also their aptitude to fatten, their ability to perform work at the cart or plow. The feeding quality of swine must also be determined by the physical qualities of the beast.

The qualities of the sheep for mutton and for wool must be fixed. Still there is much requiring mental activity unnoticed. The general superintendance of the work of the farm, that all things may be done in order and at the proper time. The selection of proper tools for all the varied operations of the farm, is a matter requiring considerable knowledge—selections are to be made between various plows, cultivators, harrows, hoes, scythes, forks, mowers, reapers, threshers, crushers, straw cutters, &c.

Agriculture thus makes constant requirements of the mental powers and of the most varied kind, and those mental efforts are guided by nature, in the fields of growing corn and gardens of fruits and flowers, to truth. Whilst there are few professions or callings in life requiring more of thought and judgment than agriculture, there are none with so few inducements to deceptious thought. Its promptings and inducements are all in the way of truth. Hence in agricultural life the large amount of virtue that commonly prevails. That common sense that is so characteristic of rural life, is but the result of the truthful promptings of the mind; for it is true that those given to deception, are most apt to be the dupes of the deceiver.

It has been often repeated, that the agriculturist has made little progress, that whilst others have been moving rapidly forward, he has been content to plow and hoe in the old way. This is a very great error; none have advanced with more rapidity or accomplished greater things.

The wilderness has been changed into cultivated fields and gardens and made to blossom as the rose. The earth has been created in wisdom and sublimely adorned, but God has required man to cultivate it, and has wisely given him the power to add new and even greater beauties to the face of it. See how finely those cultivated fields of grass, shaded by cultivated shrubs and lofty trees, compares with the native darkness of the forest.

Fields of growing grain adds greatly to the beauty of the cultivated plains. We

look upon a rich valley, in its native state, it is covered with the crab—its bloom in spring is beautiful indeed, but the tree is full of thorns and unsightly—its fruit is sour and unwholesome. But the hand of the cultivator has been here—and this valley has been changed into an orchard, and these thorny crabs into the most beautiful and tempting of our modern apples. Hundreds of varieties of the most delicious fruit are now the representatives of a single parent.

Another evidence of the progress made by the culturist is the fine pears of the present time. In its wild state it is one of the most austere of all fruits, and a *choke pear* of our fields, really a great improvement on the wild type, seizes one's throat with such an unmerciful gripe, as to leave it no soothing remembrance of nectar and ambrosia.

Like improvements may be noted of the whole catalogue of fruits, and we might add, vegetables and cereals.

The floral kingdom has also been modified by the hand of the culturist. The rose, the most beautiful of all flowers, has been made to reflect almost every color and shade known. What has been done for the rose, has been done for most of the bloomers. They have been enlarged or dwarfed to suit the convenience of the cultivator. Colors have been multiplied or modified to suit every taste.

The evidences of progress has not been confined alone to the vegetable kingdom, but is quite as visibly marked upon the animal kingdom.

The horse has been moulded to suit every purpose of life. If an enemy is to be pursued, or if we are to be saved by flight, a horse is bred for the purpose.

If a quiet hackney be needed that all the babies may be safe upon him, he too has been produced. In like manner the dray, the pleasure carriage, and the saddle, have all had horses bred to suit. And what is still more wonderful, I see by many of your catalogues of prizes, that the object now is to combine all these qualities in the same animal. And who can doubt in this progressive age that he may see the enormous cart horse, the insignificant poney, the fleet racer, and the quiet plow horse, all upon the same pair of legs, draying, racing, plowing, under the saddle, or parading a monkey at a circus, just as the wants of the owner may require?

Such breeders as Bakewell, and Colling and others, have done much for horned cattle and sheep. If milk be wanted, the proper developments have been produced. If a sprightly beast for the yoke is wanted, he too has been bred with limbs as trim as the racer, and powers equal to the ox. Is beef the object, then here is the Duke of Northumberland, Duke of Cambridge, Grand Duke, and many other breeds of English lords and noblemen, that are all steak or surloin, as the taste of the epicure may desire; and as the head and neck is poor beef, these English noblemen have been bred without the former, as has been sufficiently proved of late before Sevastopol.

A comparison between a sample of fine Saxony wool and a lock from the common sheep of the country, will show what a wonderful change has been produced by the skill of the breeder. Not his coat alone has been changed to silky fineness, but his carcass has been so moulded and shaped until he is one of the finest formed beasts of all our herds.

Those stupid grunters that annually fill our pork barrels have also been changed into a very high order of respectability. Their evil propensities have been changed

into quiet habits. The beautiful white tender skins, the delicate limbs, and the small heads of the present esteemed breeds, contrasts finely with the grisly, long nosed rooters and nut crackers of thirty years ago. They have also been made to assume sizes to suit every man's ability. If he is poor, and has but a single bucket of swill a day, a China pig will keep fat upon it; if a large farmer, with a thousand acres af Indian corn, and cannot get men and boys enough to gather it, then he turns in six hundred pound porkers, who in due season, with reasonable industry, house the whole.

I have pointed out a few things that have been accomplished by the culturist, a very imperfect sketch of all that has been done; but enough we trust to show, that he has ever been with the foremost in progress.

Although he has moved quietly and without display, modesty has not been his only good quality. The wilderness has been changed into delightful fields—rough places have been made smooth—the sour crab has been changed into the most delicious fruit—the beasts of the field have been tamed, and even their physical conformation has been changed and moulded to suit every want and interest of man. It is with joy that we look to the future and anticipate the rich blessings that God yet has in reservation for virtuous industry.

I am aware that the impression is an abiding one, that the laborer cannot be a man of knowledge, (and I intend here to remark of labor generally, as its influence upon the mental and physical man are the same), that it is the man of books alone. Knowledge, we repeat, is but an acquaintance with things and is not affected by the manner in which it is obtained. It may be obtained by books or by conversation, by lecture or by labor—it is still the same.

It may be admitted that the laborer is less a man of books than others, yet his labor has been a source of knowledge, and is to him what demonstration in anatomy is to the student of surgery, an exhibition of the parts.

Labor itself is but daily teachings, and if commenced in youth and followed up will, in old age, have furnished a large store of the most useful knowledge.

The knowledge resulting from labor has been greatly overlooked; and the force and clearness of perception so often manifesting itself among the laboring classes has been attributed to natural causes, and has been called common sense, mother wit, &c. Though it is but knowledge—the result of correct thought—it is the fruit of industrious habits, and is commonly found associated with truth and honesty.

The value of labor, and its beneficial influence upon the destiny of our race, is so marked, that too much praise can scarcely be uttered in its behalf. When we examine the source of those important inventions that have added so large an amount to human happiness and prosperity, they are found to have been produced by those who of necessity have been compelled to labor.

In addition to what has been accomplished by the agricultural laborer, a notice of some of the important inventions of those engaged in other departments of labor is paying but a proper tribute of respect to labor in general, and that these facts are additional evidences, showing that labor is one of the most important sources of knowledge, and should be looked to as an accomplishment of the highest order.

John Fitch, who conceived and demonstrated the practicability of steam naviga-

tion, in 1787, was by trade a gunsmith. His father was poor, and not only neglected his education but treated him badly.

Robert Fulton, who succeeded in executing the conception of Fitch, was the son of very poor parents, who lived in Lancaster county, Pennsylvania.

The inventor of a machine to separate the cotton seed from the fiber, and which added so much to the value of southern land and negroes, was once a young carpenter of New England.

Oliver Evans, the author of many important inventions, and among them the first locomotive, the first high pressure steam engine, and the first carding machine, was very poor and apprenticed, at an early age, to a carpenter.

The inventor of sub-marine warfare, David Bushnell, was the son of a poor farmer. He obtained, however, a first class collegiate education by his own exertions

Jacob Perkins, the inventor of a machine which cuts and heads nails at the same time, together with many other important inventions, commenced life as an apprentice to a goldsmith.

Amos Whitmore, the inventor of a machine to make cotton and wool cards, was a gunsmith.

Thomas Blanchard, who invented a machine to turn gun-stocks, lasts, axe-helves, &c., was the son of a New England farmer, who could only afford his son a common school education.

Robert Hoe, the great improver of the printing press, was a carpenter and penniless at eighteen.

Thomas Godfrey, the inventor of the quadrant, was a poor glazier in the neighborhood of Philadelphia.

Erastus Brigham Bigelow, the inventor of looms for weaving coach lace, carpets, &c., was the son of a small farmer, wheelwright, and chairmaker, of New England.

Donald McKay, the great ship builder of Boston, commenced life very poor.

R. F. and J. P. Williams, who invented the process of mableizing iron, were poor boys of Cincinnati.

The inventor of the spinning jenny, in 1767, Richard Hargraves, was an humble weaver in Lancashire, England.

A poor peasant of Scotland, William Allen, invented the iron plow.

Joseph Brahma, who invented the hydrostatic press, was the son of a farmer in moderate circumstances.

John Holland, who invented a time-keeper to determine longitude at sea, was the son of a carpenter.

Halfield, the most distinguished of German mechanics, was born of poor parents.

The inventor of the telescope was a spectacle maker of Holland.

Watt, who constructed the first steam engine, was a self educated man.

Jacquard, a poor man of the city of Lyons, was the inventor of the first netting machine.

Of these inventions, some have been made in the United States and some in Europe. The telescope, the iron plow, a time-keeper to determine longitude at sea, the hydrostatic press, the spinning jenny, the spinning cotton by machinery.

the netting machine, the steam engine, &c, are of European origin. Of the inventors that we have named the following belong to Europe: Allen, Halfield, a distinguished German mechanic, John Holland, Joseph Brahma, Richard Hargraves, Arkwright, Oberkampf, Watt, and Jacquard. These inventions and inventors mainly belong to England.

Why was it, that with a nobility, learned, with wealth and time, that the spinning jenny, which has added so much to the wealth of England, should have been invented by a poor and obscure weaver? And why was it left to a barber to first conceive the idea of spinning cotton by machinery? Or why was not the invention of the telescope left to some of the learned and wealthy aristocracy of the continent, instead of a poor spectacle maker of Holland? It was not because they were learned, in the common acceptation of that phrase, but because they were rich and idle, and there was no necessity to labor; and they were consequently destitute of that kind of thought which is the result of labor, and that energy which is the fruit of necessity. The progress of Europe has been by its working classes and in spite of its nobility. It is the just fruit of labor as is its wealth.

The same is true of the United States. Navigation by steam, the locomotive, the carding machine, the machine to separate the cotton seed from the fiber, the high pressure steam engine, the only one which can be used on railways, submarine warfare, the machine to make cotton and wool cards, the nail machine, which cuts and heads at the same time, the machine to turn gun stocks, lasts, axe-helves, busts, and images, the quadrant, the machine for weaving coach lace, carpets, &c, are American inventions, and are the rich fruits of our laborers.

Of these inventions every American may be justly proud; as he may also be of John Fitch, Robert Fulton, Oliver Evans, Eli Whitney, David Bushnell, Amos Whitmore, Jacob Perkins, Thomas Blanchard, Thomas Godfrey, Robert Holland, and E. B. Bigelow, their inventors. Worthy representatives, they are, of labor! Honored citizens of the republic! It is to such as these that the country is indebted for its imperishable reputation; and such laborers will make every citizen, at home or abroad, proud of the name of Yankee. So long as the names of such worthy laborers are cherished and honored, so long will the destiny of the country be onward and upward. These inventions are the fruits of the honest laborer, and these worthy inventors, we are proud to repeat, were laborers.

The large slave-holders of this country are a pretty good representative of the English aristocracy. They have, many of them, great wealth; they are well educated, polite, and hospitable to a proverb, and possess, in a high degree, all the generous feelings of our nature; but they have done nothing, and can do nothing to advance the great interests of mankind. Labor is not reputable.

Of all the improvements invented and patented in the ten years preceding 1850, 4,978 were from the free States and only 733 from the slave States, which just about represents the amount of white labor yet there. A large amount of those named are from a few States where there are but few slaves. They look upon the progress making with misgivings and doubt, and are slow to credit what is being done.

There is nothing more strikingly illustrative of the value of labor and the influence it is now exerting for good, than the facts and figures just alluded to—4,978 inventions patented in ten years to 733. A small excrescence on the body

politic—the mistletoe upon the spreading branches of the majestic oak. Without growth, from year to year it remains the same. So it is with idleness, whether it is found in the educated lord of a thousand slaves, or his great prototype, the aristocracy of Europe. This world is moved forward by other hands. "In the sweat of thy face shalt thou eat bread."

I trust no one will infer from what has been said in defence of the laborer, that we are opposed to scientific educations, or think lightly of them. The very reverse is true. The educated idler is worthless. The value of the educated worker cannot be estimated.

The laborer with but limited education has accomplished much. Now he is being better educated, at least in this country, and a progress is witnessed that has given to the age the distinctive appellation of the progressive age. And this is but the dawning of a great and glorious era that is but just ushering in. A bright morning is breaking, when knowledge and labor shall be alike respected. They shall go forth to the accomplishment of those great results that are beginning to manifest themselves. Labor is required of man by his Creator. Science shall light up his pathway. The moral advances that are now being made will add largely to his comforts here. We may then be permitted to conclude by repeating our thanksgivings for the extended blessings by which we are surrounded.

ADDRESS

Delivered before the Cass County Agricultural Society, October 4, 1855.

BY JUDGE STUART.

I have deemed it more respectful to you to commit what may be said to you on this occasion to writing, at the expense of being tedious in reading it. For I need hardly say, that the manuscript is not very legible, even to the writer himself.

The town and country are often spoken of in a way, which seem intended to convey the idea that their interests are inconsistent with, and antagonistic to each other. The effect, if fully realized, would be feelings of estrangement and hostility.

I will therefore crave your attention to some of the relations which subsist between the country and the town and their influence upon each other.

In the facts and illustrations which may be pressed into the service, I beg leave to disclaim in advance, any covert allusion to persons or things as they exist here, or as things have existed. If it comes in my way to use any part which is public

property, the use made of it will be its own best limitation. (What is true of the course of trade and the relations of Logansport to the farming community, is in general true of every place similarly situated. Hence, there is no necessity of making any local allusion, and I hereby disclaim it.)

Before proceeding further, it seems proper to make one or two suggestions.

Perhaps some one has the inquiry on his lip, how came *you* here among the *farmers?* I will briefly explain. The honor of addressing the society at its annual fair, is one so frequently tendered me that I could no longer decline. Twice before has my name been announced in this connection. On both occasions, as the time approached, I felt constrained to shrink, and did shrink from the honor. True, this was partially owing to the pressure of other duties. But it must be avowed that it was chiefly from an unfeigned dread of addressing you on topics with which I had but a brief and lang-syne acquaintance, and upon which, in both theory and detail, you were thoroughly versed and at home.

It is true I have some early and of course lasting impressions about agriculture. On more than one occasion I spent several months at a time farming. To those out-door labors I owe much of health and constitution, and pleasing reminiscences. The incidents of farm life, and the modes of agriculture prevalent in primitive settlements, are vividly remembered. Modern improvement had not, in that region, merged the duties of him who drove the plow and him who held it in one. It was still a divided labor. A boy to drive was deemed as essential as a plow-man. It was in this capacity chiefly, that I was initiated.

In the rural districts, innovation makes slow progress. It has been said, with what truth you can best determine, that the habits of the farmer, his modes of thinking and acting, are the most old-fashioned and inveterate of all others He is said to cling tenaciously to old usages, long after their inutility or inferiority has been established. Or as it is elsewhere more daintily expressed, "those who are engaged in the culture of the earth, are proverbially cautious of innovation." Hence the story of the son taking the grist to mill, with the corn in one end of the sack and a stone in the other, because his father had done so. Though the fact may be apochryphal, it is not a bad illustration. Whether such practice prevailed at the time of which we speak is not material. There was enough existing not much better recommended. Whether we do not occasionally see what is not much better than a stone in the meal bag, even among our own farmers, I will not stop to inquire. I apprehend, however, that an amusing chapter on this very subject, might be gleaned from the farming of Cass county.

The tastes acquired during my brief initiation on the farm have never been wholly neglected. They have always been recalled with pleasure. They have even been partially cultivated when the time thus devoted was stolen from the most laborious and exacting of professions. I have scarcely ever been without some pet of the farm. As an amusement, I preferred it to fishing and such modes of killing time.

During nineteen years residence in Logansport, Berkshires, Durhams, the sheep-fold, the aviary, and the poultry yard, have furnished many an hour of healthful and invigorating recreation. Most amusements are expensive. It would be idle to foot up the profit and loss in any of them. But perhaps, even on that score the tastes to which I allude can be cultivated with as little cost as any of them. Be-

sides to watch the daily development of some beautiful animal under your care, is quite as rational a recreation, as to bait a trout or snare a partridge. But on such matters tastes will differ. Hence, I presume, the reason why I am here among the farmers. It is to this love of agricultural pursuits thus cultivated, often amid the sneers of certain gentry who, having no sympathy with the tillers of the soil, regard such tastes and labors as degrading; it is to this that I no doubt owe the honors so frequently tendered me by the farmers of Cass county.

And yet, I have been sorely perplexed what to say to you. There is no subject immediately connected with agriculture, in which my experience is not limited and rusty — yours fresh and extended. To speak of your numbers, your wealth, your importance and power, superior to all the other industrial classes put together, would be but to repeat what every intelligent farmer knows. The scale of the farmer among the other classes, is happily illustrated by the old adage that the magistrate rules all, the soldier fights for all, the parson prays for all, and the farmer pays for all.

Your position in society is too well defined to need comment. Hence I have selected a topic collateral to the main purposes of agriculture — more with the view of stimulating your own inquiries than with the hope of imparting instruction. Permit me, therefore, to give you a plain talk about matters of common interest to both town and country, bespeaking such kind indulgence on your part as you would have extended to you, were you addressing an assembly of lawyers on legal topics.

It must be obvious to every one that the mere culture of the soil is not all of farming. To graft and prune, sow and reap, skillfully cross, and successfully raise stock, are but a few of the common duties of the farm. More or less of skill in these things is universal. It is not proposed to dwell upon them. The application of modern improvements in these several departments is also so much a matter of course, and so essential to even comparative success, that you may be safely presumed to be well informed. Of this, the increasing interest of your annual fair is itself the best evidence. The exhibition of this year is a decided improvement on the last — so was the last on that which preceded it. The fruit, the vegetables, the poultry, the stock, show that the farmers have been aspiring after the best things — seeking the latest improvements.

The large number of agricultural papers taken in the county, show how intelligently, and with what just aspirations the farmers are pursuing their avocation. And they find their reward. The ample harvest and ready and remunerating market for every product of the farm were perhaps never equalled. The times for the last few years have been emphatically a continued harvest to the farmer. He has almost realized the fable of turning everything he touches to gold.

The facilities for sending off the products of the soil, so soon to be enjoyed on a new and enlarged scale, are no doubt fully appreciated as an additional incentive to action. The railroads now on the eve of being opened, while they will give a new impulse to every department of industry, both in town and country, will be particularly productive of advantage to the farming community.

What these advantages are I will not stop to point out. It is taken for granted that you are well advised on that subject. But there are sequences incident to your new position, scarcely less important than the harvest itself. Next to produc-

ing the crop is the best mode of disposing of it. Mere cultivation is but half way to market. Plowing and sowing, and reaping and gathering in "the full sheaf," is but the farmer's route to that centre and end of his annual toil. The time, the place of market, the price, and the currency in which your toil is to be remunerated, are considerations yet to come.

Here is the very point where intelligence tells in farming. Here he must observe and think, if he would not be despoiled of the fruits of his labor. On the farm, his duties become a sort of a second nature. He performs them almost mechanically, without thought. But the moment he enters the market, he is confronted with all the keen edges and cunning devices of professional traders. It behooves him to think then, if he has any think in him.

To do so to any purpose, he must be well informed as to the relations of demand and supply — the wants and prospect of the market both at home and abroad. In other words, he should be well posted on the domestic and foreign commerce of the country. Or, more familiarly, he should take the papers. Without such information, the larger part of the profits of his toil, justly due to him, are reaped by others.

Almost literally may it be said of the ignorant farmer, that he sows and another reaps. And that is not all. He not only loses the advantages of commercial intelligence, in a pecuniary view, but he loses more. He loses that additional mental strength which all facts and observation, well digested, never fail to impart.

The importance of commercial intelligence to the farmer becomes more apparent when we consider the tendency of recent legislation of trade. The commercial policy of the world is becoming more rational and liberal. Corn laws, high protective tariffs, and commercial restrictions generally, are gradually passing away. The market of the American farmer is at no distant day to be the whole commercial world. Even now the wheat you raise in this county, may be consumed at the camp in the Crimea, or on the coast of the Pacific.

There are no mysteries about commerce which the humblest understanding may not comprehend. It is simply exchange of commodities. The products of the soil, and the results of mechanical ingenuity, are conveyed from where they are abundant and cheap, to where they are scarce and high priced. When wheat, rice, cotton, or corn is in demand in any part of the world, commerce conveys them thither from the places where these articles are produced and abound. And the whole of commercial intelligence consists in understanding the wants of the market, and the sources of supply. The relations therefore, of production and consumption, of demand and supply, constitute the whole of commerce.

The humblest grocery keeper in your midst, buying daily supplies of vegetables and fruits, where he can buy them cheapest, in such quantities as he can sell without loss, is acting on precisely the same principles as he is whose ships penetrate every sea. He is illustrating, on a small scale, the principles of demand and supply. He is bringing the things for which a growing consumption has created a demand within the reach of the consumer.

The man who loads his vessel at Eastport with ice for a Southern market, and brings back in exchange the fruits of the tropics, does no more. Both are governed by the same principles. The only difference is that the one requires a wider

range of information, and more capital to conduct the exchange of commodities successfully.

Commercial intelligence seems therefore indispensable to successful farming. It will free the farmer from many a blunder in the kind and quantity of his products. The ignorant farmer will expend all his energies on his immense corn fields. By the time he is ready to sell, the market is glutted with corn. Or, perhaps, he has blindly disregarded the fact that his only means of conveying such a crop to market will more than eat up all the profits. He has cultivated a large farm. He has raised a fine crop. It is all there — his barns are groaning with grain. And yet he is comparatively a poor man — wholly for want of intelligence in his vocation. He is not lacking in industry or energy. He lacks the intelligence necessary to successful farming. Hence his industry is misdirected and unprofitable.

It is on these questions, the relations of demand and production — the probabilities of a market for this or that product, that the observation and intelligence of the farmer is called into exercise.

To make the utmost of his position, he should be as familiar with the prospects of the market at home and abroad, as far as the articles which he is wont to produce are embraced as articles of commerce, as he is with the theory of plowing, and seeding and reaping. Nor is the task so great as one might imagine. If the cereal crops fail in Europe, it may reasonably be expected that under the liberal policy now growing up in both hemispheres, they will become our customers. If in addition to this, war or any other calamity has fallen upon the grain growing countries of Europe, the extent of the demand must be further enlarged. If in addition still, the crops have failed in any considerable portions of our own country, then there is another element for consideration.

When all these concur, then in almanac phrase, a ready market and high prices may be safely expected. European or domestic orders on New York, never fail to have their effect. Like a pebble thrown into a pond, such an impulse is felt in all the grain markets of the Union.

The importance to the country of a large market town as their centre of business, to facilitate the produce operations of the farmer, which we have been briefly contemplating, is obvious to all. It is so strikingly so, that we will not stop to illustrate.

All can see that a county town of 12,000 inhabitants is far more important to to the farmers of the surrounding country, than a town with a population of 1200; because among other things, of the increased competition and increased facilities of forwarding the produce of the country to a distant market.

In addition to this the relations of the country and town are worthy of a passing glance more in detail.

I need only intimate what you all know, that the value of lands in the vicinity of a large town is immensely enhanced in proportion to the size of the town and their proximity to it.

The advantage of a large town, and consequently a great many different stores, with all the varied assortments of clothing and groceries, which the country consumes, is equally obvious. It gives a wider range for selection; and competition puts down prices to the lowest rates.

It frequently lightens many of the public burdens which would otherwise fall heavily on the farmer. Suppose your court house burned down, and it required $20,000 to rebuild it. A tax is levied for that purpose. The taxable property of the county is $2,000,000. If the town contains one tenth of that wealth, her share of the tax is $2,000—$18,000 fall upon the country. If the town contains half the wealth, then she pays half the tax, leaving $10,000 only to fall upon the farmers.

But instead of detailing wherein the country is interested in the prosperity of the town, I might better ask at once in what respect is the country not interested in that prosperity? In what one particular is not the increased wealth and importance of the town a matter of great moment and value to the country? There is none whatever. This being the case, there is no antagonism between the town and country; and when such an antagonism is pretended, it is probably with some sinister design. Their interests are identical. The prosperity of the one never fails to shed the happiest influences upon the other.

Aside from eligible commercial marts like New York, Buffalo, Chicago, &c., it is the country that makes the town. A large and prosperous town in the interior is the fruit which a rich and flourishing country bears.

One more advantage to the farmer of having a large market town, I will briefly mention, seeing that it lies in my way, for another purpose. It is the home market it affords.

In the rural districts, much that the farmer might otherwise make profitable is lost to him for want of a market; or which is about the same thing, the market is distant and difficult of access. This is not merely true of the staple commodities, but it applies particularly to what may be called the luxuries of the table. I need not specify the numerous fruits in their season, which many do and all could easily cultivate. The season of most of these fruits is brief. They will not bear transportation. Without a large and opulent county town there is no home market. There is consequently no demand—no stimulus to production.

The few farmers who have been trained to such tastes find, no doubt, both pleasure and gratified reward for the cultivation of the better kinds of strawberries, raspberries, &c. for family use. Very few of our farmers, as yet, seem to appreciate these little luxuries.

In far the greater portion of gardens cultivated without the stimulus of a convenient market, more space is ordinarily suffered to go to weeds than would suffice to raise abundance of these delicious fruits. In most cases a stronger impulse than mere appetite is necessary to their cultivation. Neither a taste for the work nor a relish for the fruit seems sufficient. The necessary impulse must be found in the demand and consequent liberal remuneration which the more lavish and luxurious tastes of a growing town never fail to create. At little more expense than it takes to furnish a few quarts of such fruits for his own table, the farmer can furnish as many gallons more for sale.

There is a still further and higher recommendation in the influence of such pursuits. The very culture of that which requires care, and skill, and taste, to produce favorable results, is itself a mental and moral education of great value. It is the tastes thus implanted for horticulture, and its kindred department the flower garden, which go so far to smooth the rugged labors of the field. A dessert of

delicious fruit, such as the best kind of cultivated strawberries, with cream, may not add much to his physical strength; he may not wield the scythe or the hoe any more vigorously for it; but if he is a man of reflection, a man of sound principles and warm heart, such a luxury will be everything to his feelings. Perhaps they were tended and culled for him by the hand of a wife or daughter. To a man of the true stamp that very circumstance will enhance their value. It is these little luxuries of the farmer's home that lend the chief charm to that employment, and make even the implements of his daily toil seem lighter in his hands.

To what extent, pecuniarily, the cultivation of these things might be realized, is at present but a matter of conjecture with most of us. It is enough for my purpose to know what must be obvious to all, that it would be limited only by the wealth and prosperity of the town. As the business and population increased, the demand for all these lighter luxuries of the table, which the farmer could easily produce, would be greatly increased. Hence the obvious advantage to the country of a large county town, and a corresponding market for light and perishable products. A late writer attributes much of the agricultural prosperity of New York to the numerous cities and villages, furnishing so many home markets all over the State.

I will not dwell on the advantage which the farmer in the vicinity of a large town derives from a home market for the more cumbrous articles. Take for example the article of hay—a crop valuable for what is produced, and, under skillful management, scarce less valuable for its renovating effects on the soil. An old meadow is notoriously rich. Hence turning to meadow, especially clover meadow, is a favorite mode of invigorating a soil that is overtasked. But without the means of disposing of the hay crop advantageously, the great majority of farmers cannot afford to resort to this mode of renovation.

In this part of the country hay has not been, nor will it probably ever be, to any appreciable extent, an article of export. Beyond the immediate wants of the farm, the neighboring towns and villages will be the only market. The same is true also, to some extent, of several root and vine crops. In regard to all these, the interest of the farmer in the increased prosperity of the town need only be mentioned to be appreciated by every one.

But it is with that portion of the town population whose business consists in forwarding the surplus produce of the country, that the farmer's most extensive and complicated relations must arise. In the early settlement of the county, and, it must be confessed, for many years after, she imported her breadstuffs largely from Tippecanoe and Carroll counties. With the opening of the canal, giving a new impulse to agriculture, that ruinous importation ceased. For several years Cass county has produced a large surplus. As farms are opened and the resources of the county developed, these surplus products increase. Thus every new avenue to market gives a new impulse to agriculture.. A comparatively small portion of the annual crop will suffice for home consumption. The great bulk of it will be sent forward for a market.

On this surplus product depends in a great measure the increased wealth of the county. It matters little in what that surplus consists—whether grain, cattle or dairy products. But it is to that surplus, whatever it be, that the farmers must chiefly look for cash, and particularly for surplus cash, if indeed any such kind of

cash ever can exist. It is not to our purpose to analyze this process, nor count the profits, nor develop the results. It is the relations subsisting between the producer and the forwarder, thus annually becoming more extensive, with which we wish to deal briefly.

This is the only part of this interesting subject that lies directly in our way; for, as already intimated, it is because of the increased facilities which wealth, population, and combined enterprise affords in this department that the farmer is so intimately connected with, and so deeply interested in the progress of the town.

Time will permit to indicate only a few points briefly. Your own experience and reflection will readily fill up what is lacking.

The farmer is interested in that competition among produce dealers to be found only in large places. With the growth of a town comes competition in all the departments of enterprise. Such stimulus has been truly designated the life of business. Within proper limits, it is advantageous to the purchasers themselves, holding them to the use of equitable means and honorable rivalry. Within such limits competition is highly beneficial to the producer. It secures him a ready sale at the full market price. This is all that the upright, intelligent farmer can expect.

With these advantages, resulting from the laws of trade, when permitted to operate freely and take their natural course, the producer has an easy and plain path; but when this course of things is obstructed he will need to tax alike his intelligence and integrity to enable him to overcome the difficulties to be encountered. In his intercourse with these intermediate produce dealers, he will sometimes have to meet combination. They combine to reduce the price. The combination is shrewdly timed. It is made when large quantities of produce are in the particular market or on its way thither. To seek any other point, then, would be ruinous or impossible. The roads, the weather, the distance, the expense, preclude the idea of going elsewhere. The hogs are on the ground—perhaps slaughtered. A sultry, damp day is setting in. Delay is ruin. He must sell as he can. Then it is that the farmer is made to bleed. Where expected a brisk competition and ready sale he encounters combination. He must come to the proscribed terms or do worse—perhaps lose all.

There is, however, another side to it: there is such a thing as stimulating and taking advantage of ardent dealers, and encouraging fraudulent speculators—the highest figure is eagerly grasped at without considering the consequences. In this, perhaps, the producers are not always so scrupulous as they ought to be, nor as a clearer view of their own best interests would dictate; they laugh at the folly of which however they readily avail themselves; they turn away from their old and tried friends to some dashing dealer who pays the highest price, in bank paper fresh from the engraver.

It is as a counterpoise to this that even respectable dealers occasionally encourage combination. One useful lesson the farmer cannot fail to treasure up—the very men who are most ardent in a silly competition to give more than the market value, will be the first to enter into fraudulent combination against the farmer to depreciate the market.

The discreet and fair dealer will no more cheat himself than he would any one else. He will not give more than a thing is worth in market—more than he knows

he can realize for it—simply to make trade brisk or spite somebody. He will prudently decline any transactions, while unscrupulous speculators have stimulated the market into an unnatural and unhealthy state. It is the man whose principles sit lightly upon him, whom, in such periods, you will find in the ascendant. It is his hour of activity.

Even to those who are temporarily benefited, it ought to be sufficiently obvious that somebody must suffer. If the reckless speculator has not the bottom to stand the ruinous operation himself, his creditors must foot the bill. I well remember, many years ago, hearing a man of this caste boast, in a public room, how he had driven A, B, and C, his competitors, out of the field. His boasting and subsequent career made a deep impression upon me. It was precisely what might have been expected. Every such speculator cannot but foresee the inevitable result. Hence he is not to be regarded as an honest or fair dealer. Prudent men will shun him, notwithstanding his high prices and new bank paper. He is not to be trusted—not to be regarded as a legitimate produce merchant—he is a produce gambler. Very often his extravagance in the market is but the gambler's bait to lure the unwary. With such an one as with him, distance from danger is the farmer's surest guard.

I had intended to allude to the kind of money sometimes put in circulation among the farmers; but time fails me. I must omit most of what I intended to say on that head. I will simply remark that the constitutional currency is the right and safety of the farmer. The paper of eastern banks, notorious at home, if known at all, as unworthy of credit, is sometimes put in circulation for grain in the west.

In view of our experience as a people of the rottenness and fraud of banking, and the immense losses which have thus fallen chiefly on the laboring classes for the last twenty-five years, amounting to the appalling sum of millions, surely a word of caution on so important a part of the relations between the town and country cannot be regarded out of place.

It is not proposed to discuss the odious monopoly thus created by most banking laws. It is only of what they put in circulation as money that I would have the farmer on his guard. A bank, for example, having the right to issue three dollars of paper alike upon capital stock and deposits, with no supervision outside of the bank over its issues, and without collateral security, cannot, in the light of all banking experience be safe. The elements which must lead to a bank explosion are implanted in the very system itself. Such a contrivance to fleece the people would do honor to the wildest feats in the history even of banking. That such banking institutions must inevitably run rapidly to destruction, no observer of such events for the last twenty years can for a moment doubt. When it will explode is a mere question of time.

The remedy for these things is in your hands. That remedy is conveyed in the common but vigorous phrase, "stand from under." Have nothing to do with it; no matter whence it came, or how it is embellished, you can safely say it is not as "good as wheat." That which secures the bill holder collaterally, dollar for dollar, is the only system of banking which has any reasonable prospect of safety. Any other paper money may, at any moment, become worthless in the hands of the holder. He sells his wheat and pork for $1,000; he receives his pay in bank

paper, issued without collateral security; he lies down at night congratulating himself upon his increased wealth. When he wakes in the morning his $1,000 may not be worth the paper he has so carefully wrapped it in.

But I cannot dwell upon and illustrate the subject as it deserves. I earnestly invoke your own attention to the claims and comparative safety of the different systems of banking. It is a subject of pecuniary importance to the farmer—it interests him to the full value of all his surplus produce at least. Nor need he fear the consequences of demanding good money. He can command it. With a county town as large as Logansport, in the midst of a grain growing country, with so many outlets to market, there is no danger of produce lying long on hand. Such granaries as this county is capable of producing, will as surely draw produce dealers as certain nameless things gather the eagles together.

Some real or supposed grievances were thought to exist in the grain market here last season. As a remedy, I am informed, some of the farmers joined together, freighted a boat with their produce and sold it; purchased their winter stores, and, after paying all expenses, done remarkably well by the operation. That such things might at times be done successfully there can be little doubt. But yet it is a mode of conducting business liable to many and serious drawbacks.

For example, one of the first things made necessary by the progress of a country in improvement and wealth is a division of labor.

In the instance just alluded to, of the farmers forwarding their own produce, this salutary process is inverted. It is in fact a retrograde movement. When we had no canal or railroad, farmers were wont to wagon what little surplus wheat they had to Michigan City. As that was the nearest point then for landing goods destined for this place, the wheat teams generally returned profitably laden with merchandise. At all events they could always come ballasted with salt. Thus in addition to laying in their winter stores they had a fair compensation for the trip. In these primitive times when one or two loads of wheat was all the surplus the best farmers had—when that was the only outlet to market, the necessity was submitted to and turned to the best account. Absence from home a few days was of little consequence; for they left but a small circle of agricultural duties to be performed. But now when farmers produce surplus grain by the 1,000 bushels; when stock, work-hands and every other arrangement of the farm correspond, the absence of a head is a serious matter.

For the farmer who has now a large circle of agricultural duties sufficient to absorb all his time and attention, it is far more profitable that he should pursue that solely. Thus will be left to each division of labor which the progress of the country has created, its own appropriate duty. Between the producer and consumer a numerous class will find a wide field in which to operate.

Some few persons might perhaps do as our friends above referred to did last year, and still be successful. But to the great mass of the farming community the project is wholly impracticable. Some few might perhaps raise their own oranges in hot-houses in this latitude. But they can so much more easily and cheaply procure a better article of tropical fruit by exchange of commodities, that the hot-house culture is not likely to become contageous. Nor is the experiment of our friends as forwarders likely to be taking. Our too adventurous farmer will meet with difficulties of the very same kind in the distant market to which he

resorts as those from which he seeks to escape in the home market. He will meet with combination and worthless paper there also. He will have to meet them too with less resources, less means of evading disastrous results than at home. In the one place he could store his grain and quietly wait a favorable change. In a distant market that is scarcely possible. Standing there in a hostile attitude to the whole corps of forwarders and intermediates, he is not likely to have much latitude or choice of terms.

It is hardly worth while to suggest that in the home market the farmer gets his money when he parts with his produce. But when a dozen farmers club together to forward their own crop, there is considerable confidence required. It may be well for a time or two. But some one might be delegated of easy integrity, who finding himself in possession of a large sum of money, belonging to a dozen rich farmers, might possibly forget it under his pillow, or wander too far with it in the wrong direction. At least in weighing all the advantages and disadvantages of the new project, this is not to be forgotten.

Again, suppose it were possible to thus carry off the surplus produce of the country by the agency of the farmers themselves, I need not ask you what would be the immediate effect at home—I need not ask what would become of the intermediate men filling the several divisions of labor. I need not ask what would be the effect on the mechanics, the merchants, the business and business men of the town, and the home market which all these classes furnish to the farmer. You must be convinced that the consequences would be ruinous to both town and country. By such a course you would contribute largely to build up other places and break down your own town and destroy a most valuable home market. Such a policy has nothing to commend it—even if it were feasable in itself.

In speaking of a home market I would not be understood to advocate any system which would look to that as the only or even the chief market of the farmer. Sufficient has perhaps already been said to indicate that I had no such theory in view. But I would not leave the point in doubt. In a country of such vast agricultural resources, and sparse population, the production must for generations to come far exceed the home consumption. That must be a far distant day, indeed, when the population and the fully developed agricultural resources of the country shall be so equalized and the division of labor so complete, that just so many as is needed and no more shall be engaged in each department of industry. If that day should ever come, the population must be indeed immense. The teeming millions of China would be nothing to it. It really taxes the imagination to conceive of such a state of things. Just fancy the whole country from the Atlantic to the Pacific under the highest state of cultivation; superior perhaps, owing to the progress of agricultural science and art—superior to anything now existing in Holland, England, or anywhere else—corn yielding two hundred bushels to the acre and everything else in proportion; and yet that all this vast product should find a home market.

A moment's reflection must convince us that such a Utopian state of things is not possible. The plagues incident to a dense population and failure of crops would be ever and anon disturbing this fanciful equilibrium of production and consumption. This year the consumers would be swept off and there would be a sur-

plus of production. Next year the crops would fail and there would be surplus of consumers and a famine. The whole scheme of an exclusively home market contemplated by corn laws and high prohibitory tariffs is utterly visionary. To attempt to make ourselves, in spite of all our vast agricultural recources, a second Japan, importing nothing, and, as a matter of course, exporting nothing, would be to shut our eyes upon our magnificent destiny as the great granery of the world.

We should therefore cherish a home market for what it is. So far as it goes it is valuable. For certain minor products it is and must remain the only market. Yet for all the great products of the Indiana farmer a suitable market can only be found abroad.

A most important branch of our subject must remain wholly untouched for want of time, viz: the social influences of the country and town upon each other.

The deep interest taken by the town in whatever relates to the progress of agriculture must be gratifying to the farmers. That interest is manifested in various ways. Some ten years ago the late Mr. Skelton, then a resident of Logansport, brought two splendid Durhams from Cincinnati, valued at the time at a thousand dollars. Many other examples might be given; but one more must suffice. It is one too not so creditable to the farmers themselves as could be wished. It is this. A majority of the members of the agricultural society reside in town. I am informed by the former treasurer, Mr Keep, that this has been so ever since the society was organized. The people in town generally have no other connection with farming than their intelligent and active sympathy with the most important of all branches of industry. They have a just pride in the farming interests of the county. When their friends from abroad come here, they are taken to this or that farm to show them the progress and style of improvement. And it is a matter of just pride to every denizen of Logansport, that in a ride of five or six miles, almost in any direction, some splendid farms, whose buildings, orchards and culture would do honor to any country, can be exhibited.

But it must be admitted a large class of the farmers of this county are considerably behind the times in their modes of culture, their stock, their agricultural implements and their style of farming generally. Almost invariably you will find such farmers standing aloof from agricultural societies. Why is this? Why do so many of the farmers lag away behind the age, farming it precisely as their fathers, grand-fathers and great-grand fathers had done? Just as though science and experiment, while they had amazingly accelerated the improvement of every other industrial pursuit, had done nothing in the world for agriculture. Why is it that a society, solely for the benefit of the farmer, patronized both by the State and the county as a measure of manifest public policy, has yet to be sustained chiefly by men who are not farmers? These questions admit of but one answer, so plain that I need not suggest it. In 1850 there were one thousand one hundred and thirty-four farms in the county. At this time there are at least two thousand—perhaps near two thousand five hundred. How many do you suppose of all these have that pride of profession—that just ambition to learn whatever relates to their vocation, as to join the society? I do not like to name the exact number, but it is small compared with the number of farmers in the county. I therefore confidently submit to the farmers who keep aloof from agricultural progress, are you in

this matter just to yourselves and to your high calling? If not, hear what one of your number, an eminent scientific and practical farmer says of the influence of agricultural affairs:

"They make farmers in different parts of the country acquainted with each other. They cause a rapid dissemination of knowledge among the whole profession. They bring the art of agriculture into fashion. Old practices are amended, new ones introduced, and a degree of exertion is called forth unexampled among agriculturists."

Since writing the above I accidentally met an address delivered last year in Pennsylvania, from which I beg to present a brief extract. It is plainer spoken and may possibly suit the state of things here better than that we have suggested. It shows that the same difficulties exist everywhere east and west. And I close with this quotation with the more pleasure because it suggests a view of the relations of the town and country which had not occurred to me, and which is equally truthful and apposite:

"Some object to agricultural societies because intelligent and public spirited men in towns, such as lawyers, doctors, merchants, bankers, &c., take the lead in starting and building up these societies. This is very ungenerous to say the least of it. And the very persons who make these objections will reside all their lives, and farm twenty, or forty or more years in a county, and never think of starting or helping to start an agricultural society; yet complain of others for doing so. The truth is these kind of farmers will do nothing to elevate the character of their profession. They are behind the age, and if it depended on them the whole profession would remain so. The attention that this important pursuit is receiving, is very much due to the liberality and enterprise of wise men in other callings. Who generally brings into a neighborhood the first good horses, and cows, and sheep, and hogs, and fine fruits, and useful labor saving implements of husbandry? It is usually the lawyers, doctors, merchants, &c. And for doing these things, the very persons benefit complain.

"I do not pretend to intimate that the farmers only are benefitted by this liberality of the towns-folks. There is mutual advantage growing out of it. Town people generally like good living. The better the farming, the better the living. And the more extensive the good farming, the cheaper the good living. And then again the more a farmer improves himself, the more he will improve around him, and the more he must buy. As he grows in intelligence and refinement his wants increase and his liberality expands. Hence he buys more and pays better. Thus every step upward is but the precursor of another higher still."

ADDRESS

Delivered before the Madison County Agricultural Society, October 5th, 1855.

BY T. N. STILWELL, ESQ.

I appear before you on this occasion, with feelings of embarrassment, knowing as I do, that I cannot do a subject of as much *importance* as the one before this society justice.

Nor have I the presumption to suppose, that I can enlighten this assemblage of farmers, on the subject of agriculture. And were it not that I have received the invitation to address you, at a *late* date, I would offer an apology. "But suffice it to say," "what I have I will give unto thee."

Another year has again rolled around, and the citizens of Madison county have again met at their annual fair, to exhibit and compare the progress they have made in their agricultural and mechanical pursuits. We have met under auspicious circumstances, a bountiful Providence has again smiled, and filled our granaries to overflowing.

We live in an age of progression; an age marked by extraordinary occurrences —unequaled in the history of our country—we live in an age in which the arts and sciences have made more progress than they had made in the last *six hundred* years previously. And I know of no place where we have more of a practical demonstration of the age we live in, than in our county of Madison.

How many years ago was it that this county was a howling wilderness, inhabited by the aborigines of the country. There are men within the sound of my voice, who remember back but a few years, when within a short distance of the very place where we now hold our county fair, was erected the council house of the Indians, from whose chief our county seat derived its name.

What a change? Instead of the cordance of the red men of the forest, we are met here to exhibit and compare the products of the farmer, the skill and genius of our mechanics—and instead of the howl of the wild beasts, we have the whistle of the locomotive, as it traverses our county in every direction, carrying off the products of our agriculturists.

But let us look at the progress we have made in agricultural implements: why, it is but a few years ago you had to *clean* your wheat by shaking a sheet in the wind, and you could do that only when Providence saw fit to send a *breeze*.

You had to thresh your grain out with a flail, or thresh it out with horses. You have now threshing machines that will thresh hundreds of bushels per day, and clean it ready for the mill at the same time.

You formerly had to cut all your wheat with a sycle, and when wheat cradles came in vogue, you thought them a great invention, but now you have reapers that

will cut as fast as a horse can *trot*. Compare the old pod-augur way of planting corn to the modern improvement of furrowing, planting and covering, *all* at the same time, you don't use one farming instrument of the same kind you did thirty years ago, save the *goose yoke*, which never changes.

How was it in regard to your honey? You had to kill your bees to get it, now you have hives that will manufacture it in your dish, ready for the table. This is certainly an age of progression.

Franklin's bottling electricity, would not now, in this age of progression, be worth a newspaper paragraph; for now, with a *single line*, we drive lightning around the world. The time required to send a telegraphic dispatch one thousand miles is only the two hundredth part of a second. To send it around the globe would only require the eighth part of a second. A dispatch would fly around the world eight times between the beating of a clock. When such statements are made, are we not disposed to exclaim, "are such things here as we do speak of, or have we eaten of the insane root that makes the reason prisoner."

Agriculture is one of the most ancient, and one of the most honorable pursuits of men, from the remotest ages of antiquity, up to the pesent time, it has held a a prominent rank. Abraham, Isaac, and Jacob, were herdsmen. Saul drove his oxen, and David guarded his sheep. The great Carthagenean General, Mago, wrote twenty eight books on agriculture.

With the ancient Romans, it was held in equally high estimation, and when we recur to those ancient republicans, and witness them in their glory, we find it was, when the important offices were filled or conferred on men, who thought it no disgrace to follow the plow, and engage in rural pursuits. Cincinnatus went from the plow to the dictatorship. And Cato, a civilian, statesman, and orator, who had commanded armies and governed provinces, wrote largely on agriculture.

How was it with Washington, the father of his country? He was taken from the plow, and received the command of our armies; and after the war, he returned to his honorable employment.

Every department of science and art depends on agriculture, and upon agriculture, in addition to the necessaries of life, depends the success of every other employment.

It is agriculture that builds our cities, covers our fields with yellow grain, and diffuses life and vigor throughout our land. It is agriculture that supports our large manufactories, and causes our ten thousand ships to spread their sails for every clime.

Lord Erskin has truly said, "you might as well hope to see the human body in active motion when palsy had reached the heart, or a tree flourish after its roots had decayed, as expect to see manufactories, or arts, or industry of any description progressive when agriculture has declined. Paralyze it, and you weaken the pulse of enterprise, stiffen the fingers of machinery, and clip the wings of commerce.

Destroy it, and you bury in one common grave, national power, and individual prosperity."

America offers to the farmer the grandest field for the exercise of his intellectual and scientific energy, of any country on God's foot stool. And the Americas

farmer should be educated in his particular branch, in the same ratio as the professional man.

It is a maxim, I believe, laid down by Edmund Burke, "that education is the chief defense of a nation." It is also confirmed by James Madison, that a well instructed people alone could remain a free people." John Adams has said, "that a republican government without knowledge, was like a body without soul."

The maxims I have just alluded to will refer to education in general, whether it be the divine, the lawyer, the physician, the mechanic, or last, but not least, the agriculturist.

To become master of an agricultural education will take equal toil and labor of the mind, as any other profession. Is it not important that a man should be skilled in the theory and practice of agriculture, before he undertakes the management of a farm? If a man is to rely upon the profession of the law, physic, or divinity, he must devote years of laborious attention to the peculiar studies of that profession.

The intelligent merchant dilligently studies the best works on trade. The same with the skillful mechanic; he must study and become conversant with those works connected with his trade; and should have the directions and instructions of an experienced and practical operator.

To enable the agriculturist to apply the principles of science to agriculture to the cultivation of the ground, he should understand and devote much time to those studies, and their practical application, connected with all the ranges of rural economy. Natural history, natural philosophy, chemistry, also animals, vegetables, minerals, and soils, are to be studied and understood. Arts and sciences combined, whether with agricultural or mechanical pursuits, have done wonders.

"She led him through the trackless wild,
Where noontide sunbeams never blazed,
The thistle shrunk, the harvest smiled,
And nature gladdened as she gazed
Earth's thousand tribes of living things,
At art's command to him are given,
The village grows, the city springs
And point their spires of faith to Heaven.
In fields of air he writes his name,
And treads the chambers of the sky,
He reads the stars and grasps the flame,
That quivers round the throne on high.
In war renowned, in peace sublime,
He moves in greatness and in grace,
His power subduing space and time,
Links realm to realm and race to race."

It is just as necessary to have colleges and schools, with model farms connected, to teach the science of agricultural pursuits, as it is to teach the other branches of education, yes, one of the most difficult, and that which ought to be esteemed the most honorable pursuits in life, has been generally considered so easily understood that schools, deemed necessary in almost every thing else, have been looked upon as of no consequence in this.

For, though government is lavish of appropriations to commerce and the arts, it is both blind to the interest, and deaf to the demands of the interest of agriculturists, at the same time agriculture gives more employment to more capital and labor in the United States, than all other pursuits combined.

We find our government ordering new steam vessels almost monthly, for the mere purpose of testing new inventions, in steam machinery; more than one hundred thousand dollars have been spent for improvements in the telescope, and not one *cent* has ever been *appropriated* for improvements in the *plow*.

Within the last few years, France has endowed one hundred and eighty agricultural colleges and academies, while the politicians of the United States have told the farmers that *they* were the bone and sinew of our country, and paid nine tenths of the taxes, in consideraiton of which, they had better attend to their farming in their *old way*, and *vote* for *them* at the next election.

It has been the custom of our colleges, heretofore, in the United States, to educate young men for the different learned professions, and it is but seldom indeed, that we find any of those young men engaged in the field of the farmer, or in the shop of the mechanic. And even by a great many of the cod-fish, silk stocking aristocracy, to be a farmer was not considered as honorable as to be a professional man, but thanks to our republican government, *we have no patents to nobility.*

The sturdy arm of the laborer, and the cunning hand of the mechanic, can assert their rights to a scientific education.

Many parents are anxious to give their sons a learned profession, thinking by so doing, they will elevate them in society, and give them an easier way of making money, and making them more genteel. What a mistaken idea! While, on the contrary, if you wish your sons to have honor, wealth, and above all other blessings *health*, let them follow the agricultural pursuits.

Here, and throughout the great Mississippi valley, nature has been liberal; this valley is to be peopled and cultivated, the overwhelming masses must be farmers. As a general rule they must fill our halls of legislation, and the various offices of trust, they must give character to the age in which they live, and influence future generations.

Make, in public estimation, the pursuit of agriculture as respectable as law or physic, aud the bar will no longer be crowded with more lawyers than clients, and the medical profession with more doctors than patients.

But how is this to be effected? By establishing agricultural schools, and bestowing as much attention on the education of the youth for the farm, as for the bar.

It is intelligence, efficiently directed to important objects, that commands attention and respect, and which is rewarded by wealth and honor. Education, directed to the pursuit of agriculture, will spread attractions around of the most fascinating character, and in less than a half a century after the establishment of agricnltural schools, a race of enlightened and virtuous citizens will cover our land, dispelling vice and ignorance, like the mist before the morning sun — guarding their political and religious rights from *unhallowed* usurpations, and enjoying with grateful emotions to the bountiful giver of all good, the highest blessings of which our nature is susceptible.

Let fountains of knowledge be opened in the agricultural science. Let the light of truth dawn, and reason be enthroned in the mind, on this great subject, and we need have no fears.

Let me say, we would be carrying out the views and recommendations of Washington, the father of our country, who, in his message to the citizens of the United

States, as early as the year 1796, was in favor of agricultural schools, fairs, &c. He says:

"It will not be doubted that with reference either to individual, or national welfare, agriculture is of primary importance. In proportion as nations advance in population, this truth becomes apparent, and renders the cultivation of the soil more and more an object of public patronage. Institutions for promoting it should grow up supported by the public purse. And to what object can it be dedicated with greater propriety.

"Among the means that have been employed to this end, none have been attended with greater succes than the establishment of boards, composed of proper characters, charged with collecting, and diffusing a spirit of discovery and improvement.

"This species of establishment contributes doubly to the increase of improvements, by stimulating to enterprise and experiment, and by drawing to a common centre, the results everywhere, of individual skill and observation, and spreading them thence over the nation.

"I have heretofore proposed to Congress the expediency of establishing a national university of that kind; the desirableness of such an institution has so constantly increased with every view I have taken of the subject, that I cannot omit the opportunity of once for all, recalling your attention to them."

Fifty-nine years have passed by, since the father of his country recommended Congress to make appropriation for the good of agriculture, and yet nothing has been done.

How long will the representatives of this nation, continue to disregard this wholesome advice, delivered by so able a counsellor.

Nor is it necessary for a man to be a professional man, to become eminent; for from the humblest have arisen those bright particular stars, that adorn the firmament of mind, both in Europe and America.

For example, in our own country:

Ben Franklin was a printer.

George Washington and Wm. H. Harrison were farmers.

Patrick Henry was an inn-keeper.

Tom Corwin was a waggoner boy.

Rodger Sherman was a shoe maker.

Henry Clay was the mill-boy of the slashes.

And last but not least, Joseph A. Wright, governor of Indiana, was a hod carrier.

How was it in Europe?

Sir Richard Arkright, the inventor of the spinning Jennie, which was the cause of carrying England triumphantly through the wars of the French revolution, was a barber.

Burns, the Scotch poet, and Rittenhouse, were both farmers.

Ferguson, the great astronomer, was a shepherd boy.

Bloomfield and Gifford were shoemakers.

Ben Johnson was a brick mason.

Howard, the great philanthropist, whom both hemispheres delight to remember, was a grocer's apprentice.

Sir Isaac Newton was a spectacle maker.

Virgil was the son of a potter.

Horace was the child of a shop keeper.

Shakespeare, the wise, the witty, was the son of an humble wool trader.

Demosthenes was a blacksmith, and Christopher Columbus was a poor carpet weaver.

But to gain eminence, and be useful in any trade or calling, it is necessary to have energy, application and perseverance. A man must be up and doing, and not one of those good natured come-day and God-send Sunday men—something like the good natured old Vermont farmer, who did not *care* if corn was *forty dollars per bushel.*

A certain good natured old Vermont farmer preserved his constant good nature, let what would turn up. One day, while the black-tongue prevailed in that State, one of his men came in, bringing the news that one of his red oxen was dead. "Is he?" said the old man, "well, he always was a breechy cuss. Take his hide off and carry it down to Fletcher's, it will bring the cash." An hour or so afterwards, the man came back with the news that "line back" and his mate were both dead. "Are they?" said the old man, "well, I took them of B——, to save a bad debt I never expected to get. It is lucky that it ain't the brindles. Take their hides down to Fletcher's, they will bring the cash." After the lapse of another hour, the man came back again to tell him that the nigh brindle was dead. "Is he?" said the old man, "well, he was a very old ox. Take off his hide and take it down to Fletcher's, it's worth cash, and will bring more than any two of the others." Hereupon his wife, who was a very pious soul, taking upon herself the office of Eliphaz, reprimanded her husband very severely, and asked him if he was not aware that his loss was a judgment of heaven for his wickedness. "Is it?" said the old fellow, "well, if they will take the judgment in cattle, it is the easiest way I can pay it!"

But again, it is necessary, to become master of agricultural science, to know what amount of grain our soil will continue to support and nourish, year after year.

There is no soil but what will exhaust itself by running annually, in the same kind of grain, without clovering, manuring, or resuscitating to its original soil. How was it in the New England States, in regard to the wheat crops, (which, by the way, is one of the most exhausting crops found in nature)? The amount of yield they produced, at one time, was thought to be almost incredible; they thought the soil could not be exhausted, and did not use good husbandry in its management. The consequence is, the same New England States, at this time, do not raise sufficient crops for home consumption, and the entire population is supplied from the west.

The whole product of wheat in the six New England States, in 1850, (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island), was only a little over *one million* bushels—while the single State of Indiana produced, in the same year, 6,487,968 bushels of wheat.

Duchess county, New York, formerly one of the best wheat counties in the State, which produced at one time from thirty to forty bushels per acre, only produces at this time from five to seven bushels. Hence it is certainly necessary for our national welfare, for agricultural science to interpose and save us from following in

the footsteps of the New England States, and ruining our land that we expect to entail on our children after us.

Farmers should bear in mind that it is far better and more profitable to farm a small amount of land, and do it well, than a large tract and half do it.

> "Tis folly in the extreme to till
> Extensive fields and till them ill—
> Shrewd common sense sits laughing by,
> And sure your hopes abortive die;
> For more one fertile acre yields,
> Than the huge breadth of barren fields."

There are men of my acquaintance who have been tilling, year after year, on a large estate, and at the close of every year, when their accounts are balanced, have nothing left for profits; while on the contrary, had they farmed no more land than what could have been done well, what a saving of labor, and what an increase of profit. There is one great maxim, which every one should be conversant with, especially the farmer, viz: "What is worth doing is worth doing well." By following out the principles of that maxim, will always insure success.

For instance, go to the environs of Indianapolis or Cincinnati, and visit one of those gardens, containing from five to ten acres of land, and see the amount of vegetables raised, you would think it almost incredible: and I venture the assertion that one of those Germans make more off those few acres of land than many farmers do on a farm of one hundred acres. What is the reason? Because he cultivated his ground well.

There are two classes of farmers in this country, as well as everywhere else. Let us examine for a moment the farm of the man who knows how to apply labor—you will see his buildings are neatly repaired, his fences in good order, the land is drained where needed; manures obtained best suited for the soil, and crops planted best suited for the land; his hogs, cattle, and sheep, selected from the best improved stocks; his horses fat, large, and able to work; his orchard of the best grafted fruit; his poultry, composed of Shanghais, Bramapootras, and Cochin China fowls. Such a farmer, at the end of a year, will not have to resort to loans to carry on his farm, but on the contrary will have money to loan.

Now, let us look at the other class of farmers, who misapply labor. His farm and buildings are out of repair; his fences down; his land not drained, and his crops look small and sickly. "While you will see mean, miserable, contemptible looking live stock, hanging around, with such appearances of grumbling discontent, as though they were concocting some plan to make an onslaught on their owner's crops, or commit highway robbery on their neighbors' corn fields, meadows, or hay stacks. Their hogs, with thin and gaunted forms, elongated necks, legs, and snout, looking more like they had been reared for the *race course* than the pork barrel—better calculated to run a steeple chase through a corn field, with a greyhound after them, than for weight or measurement. So long, slim, and slender, that a whole one would not make a Dutch saussage. Their cows are small bodied, long-legged and cross. Their horses are roach-backed, sickle-hammed, crop-eared, and ewe-necked. While upon the farm will be found as many dogs as sheep." Such stock will keep any man poor—will starve his farm, trespass on his neighbor, and lawsuits will follow, which will ruin him.

But the educated farmer would select and have, as I stated, a different kind of stock. He knows that the hog is the most *aristocratic* of all animals, because he

earns nothing himself and consumes all that others will provide for him, and not even grunt out of gratitude, but, like the aristocrat, is good for nothing while he lives, but when he dies his personality is distributed for the good of others. His hog he would then select as he would an aristocrat, whose fortune he expected to inherit at his death. He must have short legs, heavy quarters, thick neck, giving him a decided tendency to apoplexy, and the same epitaph would answer for both.

"His greatest pleasure and his pride,
Was that folks should know how fat he died."

His sheep he would select on the same principle as he would a dandy—must have a clean nose and a fine coat; these being the most important considerations, and indeed all that gives consequence to both animals; and when stripped of their coats both animals are worthless, and both look decidedly sheepish. But as some one has said, I ought to beg pardon for comparing a sheep to a dandy—especially the sheep.

His horse he would select as a young farmer would his wife; must be of good spirit and mettle, fine hair, fine action, bright eye, expressive countenance, arched neck, small ear, thin nostril, gay and easy carriage, a full breast, sound in body and mind, with a neat foot and clean ankle.

A farmer, with such stock, will command the highest prices, will be respected far and near, and travelers passing by his farm will admire and remark, "there is a man who knows how to apply labor." And though when he offers you his hand it may be brown from being tanned in the sun, yet there is more honor in taking that hand, of one of nature's noblemen, than all the aristocrats and upstarts of creation. His example will be imitated far and near; other farmers will inhale the same spirit, and it will get up a spirit of competition, which is the life of trade, and instead of one such farm the neighborhood will be filled with them; competition begets competition, and that is the real importance of our county fairs. One farmer wishes to produce better grain than another; one wishes to excel in raising fine stock, and so on; they also have a feeling of pride in exhibiting their products. No one would suppose it was the poor, pitiful premium that they were after, far from it. It would not pay for bringing the article to the exhibition.

In conclusion, let me say, I am glad to see the farmers and mechanics taking so much interest in our fairs. It will have its influence not only on this age but on ages to come; and when the battle fields of Napoleon and Scott shall have been covered with straw, then the products of the farmer and the skill of the mechanic will be remembered and appreciated.

Although this is the second fair we have had in Madison county its influence can be seen and felt; the first one we had would have done credit to many older counties; and this one, had it not been for the rain, would have surpassed the expectations of its most sanguine friends. May this association still continue to exist, and may it bind the farmers together in one common interest, for the good of agriculture; for,

"Although your profits are not high,
Yet on your labor all rely—
Mechanics all by you are fed,
Of you the merchant seeks his bread.
Your hands give food for every thing,
Up from the beggar to the king.
If then the plow supports the nation,
And men of every rank and station,
Let all to farmers make their bow,
And never speak against the plow."

ADDRESS

Delivered before the Wabash County Agricultural Society, on the 6th of October, 1854.

BY JOHN M. WHEELER, ESQ.

When a lawyer has, what I now have, a good cause and worthy clients, it is quite generally anticipated that his effort will be proportioned to the occasion; but I confess, in advance, my inability to satisfy such expectations, (should you have indulged them), and feel compelled to rely upon that kindness and partiality which induced you to make me the speaker of to-day. Believing that you appreciate the difficulties I have to surmount, I feel them already half overcome, and proceed less reluctantly to the task before me.

It is the great privilege of man, and one that gives him an acknowledged pre-eminence over all other living creatures, that he is endowed with the ability not only to ascertain the laws by which nature herself operates, but, by a judicious appropriation, to turn them all to his own profit and enjoyment; so that instead of the uniform though beautiful sameness which characterizes all her operations, civilized man, ever restless and untiring, is content with nothing as it is. He builds up, but tears down to build higher. He puts steam in harness—the submissive lightning is made his news carrier, and the earth itself is forced or persuaded by him to more than quadruple her productions.

This coercion of nature into subserviency to man, was begun long ages ago, but its crowning glories were reserved to our own times. It must have occurred to every reflecting mind, that however well adapted were the merely spontaneous productions of the earth to the situation of man in a state of nature, they were but poorly calculated to supply the wants of that form of human progress which is associated with civilization in even its rudest development. Accordingly, we are not surprised to learn that the art of tilling the earth had its origin at a very early epoch of the world's history. And this necessity has been the great boon of our race; for such is the wonderful power of adaptation man possesses, when his energies are awakened, that the sentence once pronounced upon him as a penalty, that he should thereafter "earn his bread by the sweat of his brow," has, in our day, been converted by him into a blessing.

Instead of a life of dull, inglorious ease, and the consequent torpidity of many of his mental and physical powers, he now feels the exhilerating consciousness that these powers are infinitely expansive, and with proud satisfaction sees the triumphs of human intellect and industry, in every quarter of the habitable globe. Far, far away, amid the crushing ice-fields of polar seas—exploring the summits of apparently inaccessible mountains—dragging into light the unsunned riches of fathomless mines—over hill and valley—on land and sea—man, toiling man, is at work, and extracts pleasure from his toil.

But until in comparatively modern times, it is true, a degree of inferiority and degradation has been associated with most forms of manual labor; especially by the false tenets of aristocratic and feudal society, was the business of husbandry considered menial, and its discharge the badge of servitude and vassalage Yet so great have been the changes produced by the growing importance of agriculture, as a source of national wealth, by the spirit of inquiry awakened by that moral earthquake, the Reformation, and, more especially, by the enfranchisement of mind and body accomplished by our own revolution, that we wonder how such a state of things continued so long.

But, my fellow citizens, is it not more remarkable that, even in our day, a remnant of the prejudice of these old lords and barons is discoverable in the fact, that if great care has been taken to give any of our young men a superior or liberal education, it was in order to qualify them *not* to be farmers; and if our young ladies become at all accomplished, or strong-minded, they are destined to some fate more dignified than to be the light and joy of a farmer's home!

That this was and is all wrong, none will seriously deny; but what is still more humiliating is the fact that the preservation of this notion, that education unfits one for the humble pursuits of labor, is mainly attributable to this other fact, that our farmers and laboring men have not, themselves, highly enough appreciated their own importance as men, and the true dignity of their own calling.

The time was when the great business of husbandry seemed to be considered a merely mechanical operation, directed only by certain inflexible usages, handed down from father to son through long forgotten generations; and the why and wherefore of any existing fact, was alike uncared for and unsought. No wonder that this first of arts remained stationary when every improvement and advance was purely accidental—when, to the farmer of that day,

> "A primrose on the river's brim,
> A yellow primrose was to him,
> And it was nothing more."

It had not then been ascertained by him how susceptible of progression his calling was; and with the meek spirit of a voluntary and self-imposed inferiority, he suffered the offices, the legislation, the honors and emoluments of his country to pass into other hands. No wonder, therefore, that agriculture was abased, when the rewards of intelligence and worth were thus surrendered to other professions.

But a plainly perceptible change has been going on within a few years; a new spirit of investigation and progress has been infused into every channel of business, and the alliance between labor and intellect has been growing closer and more close, until their union is now recognized in many of the most common avocations of life.

Labor has been elevated more nearly to its proper standard, and the undue precedency of other professions has been lessened, so that to-day you behold the two professions of agriculture and law, without any sacrifice or dignity, meeting upon the same platform—agriculture has, in short, grown into a science.

If these facts be properly estimated, I am sure that there need be no cause why a person should ever be considered too well educated for the occupation of an agriculturist, but the contrary. Indeed, so wide has become the range of actual

acquisition, as well as of inquiry, in reference to matters directly bearing upon the great interests of rural economy and husbandry, that I should be at a loss to name any branch of science, a knowledge of which may not be available in some way or other, to the intelligent, practical farmer.

The agriculturist of the present day is no longer measured by his physical powers, but rather by the skill, taste, and general information he brings to bear upon the various branches of his business—by his zealous advocacy of education—by his genial influence upon society, and by the intelligence with which he discharges his important functions as a citizen of that land in which every voter is a sovereign.

That agriculture, in its proper sense, is the great and leading interest of our State and nation, I think I may with safety claim. Other and great interests there are, but none that is so blended with the prosperity of every other as this—none that so immediately affects the rich and poor—him who plays and him who works. No, it is not alone the agriculturist who is concerned in the practical results of tillage and husbandry—even our great commercial cities derive their wealth from the soil; and, to adopt the forcible language of another, "when the natural fertility of the soil is impaired, the loss injures commerce, injures manufactures, injures professional occupations, injures educational institutions, quite as much as the farmer."

It appears, also, by the census returns of 1850, there was, at that time, nearly one million more of the free male citizens of the United States, over fifteen years of age, engaged in this pursuit alone, than in commerce, trade, manufactures, mechanic arts, and mining, altogether.

What a tale does this unfold as to the common interest that all have in the general stability and increasing strength of this chief pillar of our national wealth and power!

In Indiana, especially, where this single class of our fellow-citizens far outnumbers all that are engaged in every other occupation, are we deeply, most deeply interested in whatever concerns this, the principal source of our credit and prosperity as a State. Am I wrong, therefore, when I claim that agriculture rightfully holds the very foremost rank among professions, both by the paramount influence it exerts over every other pursuit and interest, and by the numbers of those who make it their occupation?

Such, then, my fellow-citizens, being the true attitude of your profession, are you confident that you are doing, and have done, all that is requisite to bring the business of practical agriculture, in this county, up to this standard? Is there not reason to fear that many of the great truths demonstrated in the past few years are not yet generally known; or, if known, are not generally reduced to practice? Is there not, in our midst, a distaste for the adoption of new and improved modes of culture, when not in accordance with the usages of our fathers?

It is one of the great duties of organizations like yours, to investigate these and similar questions, and by the diffusion of information, and by the influence of personal example, to remove every unfounded prejudice and obstacle that obstructs the general advance of all that pertains to your profession.

Notwithstanding the great benefits that have resulted from the union of science with practical husbandry, there is, I fear, even yet a lurking prejudice against what

is sometimes reproachfully called "book farming;" and I would gladly do whatever is in my power, on this occasion, to encourage more liberal sentiments upon this subject, and, if possible, would convince all within my hearing that true wisdom is attained only when the truths taught, whether by reason or experience, are alike honored and observed. A few facts will illustrate this important relation between science and the art of tillage.

There is, in our county, but little attention paid to the proper alternation of crops; yet, every farmer has noticed that by a continued succession of the same crop upon the same ground, one year after another, whether it be wheat or corn, or any other crop, it will gradually deteriorate until at length it will run out, as it is called, altogether. In his ignorance he has, perhaps, imputed this result to bad seasons, bad seed, or bad luck of some kind; but science here steps in, and, leaving nothing to mere conjecture, demonstrates that it is occasioned by *bad husbandry*, and explains, with beautiful simplicity, both the cause and the remedy.

Thus, wheat grown in any part of the world is shown, by chemical analysis, always to consist of precisely the same number and kind of constituent elements. This law governs the whole vegetable kingdom. Different species have each their respective and peculiar elements; and though in the same species, these ingredients may not exist in the same, nor always in uniform, proportions, yet not a single constituent is found in one plant which is not found in the same species the world over. It has been further ascertained, by scientific investigation, that these elements of plants are derived from the food taken up by them during their growth, and must exist either in the soil, air, or water, and that while they continually appropriate, and if it is not replenished will ultimately exhaust all the aliment necessary for their sustenance in a given locality—they leave all the other component parts of the soil unimpaired. It follows, therefore, that wheat, for example, which requires a large supply of alkali for its perfect growth, when raised, year after year in succession, upon the same ground, will, by degrees, eat up this alkali, and when this or any other constituent of wheat is exhausted, you can no longer grow this crop on that piece of ground. It is by inattention to these facts that our farmers are impoverishing their soil, under the mistaken idea that this country is so new and fertile that no attention need be given to this subject. It was in this way that thousands of acres of once rich and productive land have been worn out by the cultivation of tobacco in Virginia. It was this that John Randolph referred to, in his quaint but expressive way, when he said that "the Virginians were barreling up their soil and sending it to Europe."

But, though worn out for the particular crop grown in this manner, others may be still raised, providing they require only that kind of food which has not been previously consumed. Thus you can readily perceive that a rotation of crops, so arranged that each takes up a different ingredient or component part of the soil, will, of itself, do much to postpone this ultimate sterility; but if you would entirely prevent it, other things must be attended to as well. Here, again, science comes to our aid, and informs us that this great cause of diminished fertility is to be remedied *by a restoration, in some way, of the elements thus required for annual consumption.*

One of the means used for this purpose in the older States, where the process of deterioration has gone on for years, is subsoil plowing. Now, this is regarded as a

great discovery among the cultivators of old and impoverished lands; not because it adds a single element to the soil, but for the reason that it brings up and mixes with the exhausted surface those elements that were needed, but which, before, lay dormant below and out of reach of ordinary vegetation. In short, while the superficial acres remain the same, subsoil plowing brings a much larger quantity of soil into cultivation. In this country, still so rich in virgin earth, we have not so much use for this improvement, but it is the business of wise men to anticipate and prevent if possible, this as well as all other consequences of bad husbandry.

Another means for preserving fertility, is the use of suitable manures; and if you will not charge me with presumption, I will hazard the remark that this, too, is a branch of scientific and practical farming much less understood, and less attended to, by our western farmers, than it should be. Indeed, when traveling about our county, how seldom have I seen the crude but rich material of the barn-yard and straw-stack spread upon the generous soil. Whether this wasteful neglect will prove immediately injurious to the farming interests of this new country, I do not presume to decide; but it is a wholesome truth, attested by our most intelligent agriculturists, that *to restore to the soil the constituents annually removed by culture, is the only way of keeping up and increasing its fertility.*

And can it be true, as I have sometimes heard it intimated, that the soil of this section is naturally too fertile? Doubtful, I think; but even if it is, apparently, too rich for wheat, does this establish that no other crop can be grown with advantage? or that to continually take from, without ever returning anything, is the best mode of reducing the so called fertility of which you complain? In short, if you will allow me to make my questions somewhat personal, do you know, in fact, what element so abounds in your soil as to make it appear too rich? Have you ascertained, by a careful investigation, that the use of your barn-yard manures, ashes, or decayed straw-stacks will increase this element or dimish it? In order to give a satisfactory answer to these and similar inquiries, you should know the composition of these manures, and their probable effect. You should know what elements superabound in your soil, and how they may be best neutralized, what are wanting, and how they may be supplied. Indeed, when manures *are* used, the intelligent farmer knows why; and if *not* used, but wasted, he is able to explain that also.

The great purpose to be subserved by this mode of renovating the soil, is to increase, or at least, keep up that productive power of land whose strength is annually required in cultivation; and an ignorant, indiscriminate use of fertilizing agents is just as apt to cause an injurious as a beneficial effect. Illustrations of the truth of this remark may be found on every hand. We know that sandy soils, as barren as the desert, have been brought into profitable cultivation by the judicious use of clover and gypsum, and similar agents; while gypsum, used upon wet lands, would but increase the difficulty.

And this all becomes perfectly intelligible when, by the aid of science, we learn that different substances have different degrees of affinity for moisture; so, also, when alkalies are lacking, for the growth and maturity of any particular crop, we are taught that the use of potash and lime will supply this element, while if acid manures were used, it would be labor and money thrown away.

It is by this combination of scientific discovery with practical experience, that we are enabled to solve the vexed question—Who is the best farmer? The answer deserves to be indelibly imprinted upon every implement of husbandry, and to be your guide through life. It is this—*he who raises the best crops, with the least labor, on the smallest quantity of ground, without impairing the productive power of the soil.* Indeed, where over the wide domain of the agriculturist does not science shed her cheering light? Upon the modes of culture—upon the implements best adapted to use—the preservation of the soil—the rearing and improvement of stock—rural architecture—upon all these, and more, her benign influence has been felt, increasing, at once, the pleasures and rewards of labor. Do not imagine, for a moment, that I would say a word in disparagement of the more practical part of your occupation—I know too well that light shines in vain, when no one uses it; and that labor, even ignorantly applied, may accomplish much by sheer accident. But, I confess, I would, if possible, do away with every shred of that prejudice which blindly depreciates the aids of science, and the utility of agricultural publications. I would have you believe that truth is truih, whether found "in a well," or on the mountain top; and if we are wise, we would prize it and seek it everywhere. I would, if possible, awaken that pride in your profession which is the only sure guaranty of continued improvement, for no man ever attained pre-eminence who was not moved by an ambition to excel.

And O, how very different from the drudgery of mere brute labor does practical farming become, when the mind is enlightened and the causes that produce each effect are all comprehended—when intellectual power, physical labor, cultivated taste, and manual skill are all combined by the owner and cultivator of the soil!

I have intimated, that by no course of tillage, alone, can the productive power of land be indefinitely preserved; yet it is apparently true that deep, thorough plowing, proper rotation of suitable fertilizing agents will absolutely accomplish this great desideratum. Lands in Germany and Flanders, and many parts of England, that have been tilled for a half century, still produce as well as ever under their vigilant and well ordered culture. If, therefore, lands naturally as fertile as our own, shall ever become barren and unproductive, it must be the effect of bad husbandry, and not of incapacity in the soil; and it is most unquestionably true that our posterity have a right to these lands unimpaired by our neglect.

I have glanced at these matters merely to show you the nature of the aid that science proffers to you, not merely increasing the profits of your toil, but lending that charm to labor which intellectual acquisitions never fail to give.

There is no doubt, however, that greater attention to the details of cultivation—to the preparation of the ground—to the selection of the best seed, and to the timely harvesting and preservation of crops, would greatly augment individual prosperity and national wealth.

For reasons that I need not stop to point out, our Indiana wheat does not stand among the first in market quotations, but is from three to five cents *below* the first. This is a great loss to our State, and, what is worse, if one of your number, by chance or design, *does* succeed in the growth of wheat equal to best Gennessee, it has to go into our warehouses with the common deduction in price, and the common brand of inferiority. This is wrong, but unavoidable until our farmers improve the market by improving their grain.

A still greater loss, and one more easily remedied, is that arising from the diminished crops of careless or insufficient cultivation. A few calculations will explain the extent of this evil. Corn, I presume, is one of the great staples of this State, if not the greatest, and is the most congenial production of our soil; yet the average yield per acre will not, I am satisfied, be underrated at forty-five bushels; while I am equally well satisfied that if properly attended to, it would not be less than sixty bushels, making a clear loss of one-fifth; and this, upon the basis of the returns of 1850, for all the States, amounts to nearly thirteen and one-fourth millions of bushels lost in a single year. Extend this calculation to our other grain, and animal productions—our wheat, our rye, our oats, our swine, and our horses, &c., and can any one doubt that the people tax themselves in this way, in a single year, more than four-fold the State, county, and township assessments altogether?

A deficit of five cents on the bushel, which is about one-fifth the average price of corn in this State, upon the census of 1850, for this State, will show an aggregate pecuniary loss of over two and one-half millions of dollars upon corn alone. These results seem astounding, but to borrow the thought of another, "small drops of water form the mighty ocean, and little grains of sand compose its untold miles of shore." With such results as these, depending upon his intelligence and industry, does not the farmer owe a corresponding duty, to omit the use of no available means to extend his ability to the utmost to fulfill his relations as a man and a citizen and to sustain the honor of his craft?

Every one cannot be supposed to have either the means, or leisure, or even the inclination to become a student of all these new truths. Alas! seventy thousand of the citizens of our own State, cannot even read and write. This is a sad tale, but is not uncommon in countries so nearly redeemed from the forest and Indian. The great law of self preservation and a too narrow view of his own true interest and of his duty to others, must and does plead the pioneer's excuse. Bread first and learning afterward, if ever, is the necessity that governs him. But even this excuse does not exist for the justification of the present generation or of any that may succeed them. In every farmer's cabin and dwelling throughout our State, a book case ought, by this time, to have become as indispensable as a breakfast table; and if you cannot otherwise do it, forswear tobacco, and you can fill its shelves, by the money saved in this way alone, with agricultural, scientific, historical and other useful publications, worth more to the possessor than all the luxury, four times told, of the tobacco juice and tobacco fumes of a life time.

And at how trifling an expense can the more important works, that are from time to time heralded forth by the mighty press, be added to your little library. You would scarcely feel the cost amid the pleasures of perusal.

And does any one fancy that this little array of books will introduce dissension, trouble and unhappiness into the little circle where they are admitted and perused? Will they make the possessor a worse citizen, a worse neighbor, a worse father and husband? Will they blight his crops, weaken his intellect or ruin his character? No; not one of all these consequences will follow, but the contrary. And then there is the calm happiness that ever arises from the acquisition of intellectual riches, and from the consciousness of a power unfelt before, to meet and grapple with our fellow men, upon equal terms, in the battle of life. But an influence

more valuable, even, than all this, will emanate from these treasuries of knowledge, in the formation of the habits and tastes of those whose welfare is dearer than your own—your children.

I have said nothing concerning the raising and improvement of stock, which has already become one of the most important branches of the business of agriculture, not because there is no room for useful suggestions; but, rather because of my own incompetency to do the subject justice. I cannot, however, forbear calling your attention to the admitted fact, that an animal of the purest and best stock is just as easily and cheaply reared as one of the most inferior; and that the improved breeds of cattle and horses will work better, look better and sell better. So well do our intelligent farmers begin to understand these facts, that they will scarcely accept, as a gift, any other animal, if these latter can be bought. It has indeed become necessary for the agriculturist, who takes a genuine pride in the quantity and quality of the products he takes from the soil, and who would preserve his reputation as a good farmer, to extend this spirit into the care and attention he gives to the improvement of his horses, cattle, sheep, and swine, and of every other animal that contributes to his wealth or enjoyment.

But I pass from this topic to others of a prudential and economical character, which exert a most powerful influence upon the profits, the pleasures and improvements of practical husbandry.

The disposition manifested by many of the farmers of this country, to enlarge their farms, and year after year to add to them, if possible, is no doubt, one of the most efficient causes of careless and indifferent tillage. When the labor requisite for the proper culture of fifty acres is divided upon one hundred, there must necessarily be a great, if not a proportionate loss of labor; for it is undeniably true of all kinds of business, that anything imperfectly done, involves a loss of much, and sometimes of all the labor bestowed upon it. In the cultivation of the earths, it has been demonstrated by repeated experiment, that within certain limits, which there is no danger of transcending, an equal amount of labor expended upon two fields of one and two acres respectively, other things being equal, will produce a larger crop of better quality from the field of one acre than the other.

When, therefore, we reflect upon the fact, that these productions may be almost indefinitely increased, when a proper degree of skill and industry are combined, and that it is almost universally true, that the larger the crop the better is its quality, how unreasonable seems this ambition to add field to field each passing year, and how much more rational is his pride, who concentrates all his superfluous labor upon a smaller number of acres, and by farming them better, obtains a better and more sure return. There are, in our own county, farmers, who are getting poor upon farms, that under a different and more thorough mode of culture would soon enable them to lend money to us town's folks. Yet all this may be obviated by simply following this rule—*farm not a rod of ground you cannot farm well.*

What a difference, too, this would make in the appearance of the country. The business of the farm is necessarily an out-of-door employment, and his farm and everything upon and about it, animate or inanimate, are advertisements to the passer by of the taste, thrift and business qualifications of the owner. The farmer is more than any other judged by his works. The mechanic or professional man

discharges what he has in his hand and goes about something else—his reputation is seldom identified with any single transaction. Not so with the farmer—year after year he is seen busy upon the same place—about the same employments, and too often in the same old track, until at last, whatever of standing and worth he may have attained, is associated with his farm.

And when, in rambling over the country, we see the fences quite hidden by an unchecked growth of grubs and briars, or it may be, set in (as it is called) leaving the briars victorious—when instead of substantial swing gates or the old fashioned, but really invaluable bars, we find the fields opening into each other and upon the highways, by means of gaps, unsettling the fence for rods upon either side—when instead of a snug barn and out buildings, we see a half dozen tumble-down sheds, cribs, hencoops and stables huddled together at all points of the compass—or, when we notice manure wasting away in the yard—stack or ash heap—fruit trees covered with sprouts—the fields with fallen timber blown down years before—corn unhusked standing on the hill in February, with a wheat crop growing between the rows—hogs turned into the corn fields to fatten themselves—the plow standing for weeks in the last dead furrow—and the rake sticking in the same old stump—everything left just where it was last used—or, if collected at all, the harrows, log-chains, ox-yokes, cart-wheels, hoes, pitchforks, old sleds, and wagon beds, are observed leaning against and indiscriminately strung along the door yard fence, we can read but too plainly the tale of one who is striving "might and main" to convince all who are incredulous, that a man can't make a living by farming. Yet this man has, perhaps, a quarter section of good land, and half of it is under cultivation (of some sort.) *It is barely possible* that such sights may be seen in Wabash county; if so, may they soon be numbered

"————Among the things that were,
A school boy's tale, the wonder of an hour."

Another error into which farmers are liable to fall, in countries where the earth is generous and markets active, is sufficiently important to be noticed on this occasion. I refer to the extravagant calculation they are apt to make in anticipation of the coming harvest, and the habit thus induced, of trading *this* year upon the credit of his *next* year's crops. With some opportunities to know and to speak advisedly, I unhesitatingly pronounce this habit an incubus upon the farming interests, more oppressive and disheartening than all the fluctuations of seasons and markets.

It is not difficult to understand why a man, who has a deed or patent for a quarter or even a half quarter of land, can get trusted without trouble. But that farm and the labor required to till it, is the farmer's capital, and though *others* may look to that as a surety when they are crediting out their goods, *he* ought never in thought or deed, to trade as if he had any such reserve to fall back upon. The nett profits of husbandry, after deducting all expenses of harvesting, and delivery in market constitutes the interest upon his capital, and *this* is the source from whence should be derived the means to liquidate all his expenditures. But both seasons and markets are beyond his control, and may either increase or diminish these profits. To trade, therefore, in advance, relying upon this as a revenue, not contingent, but definite and certain, is hazardous in the extreme. If, however, you do run the risk, and short crops, and low prices, or ill health leave you in debt

at the end of the year, beyond your present ability to pay, that moment you lay down your independence and put on the yoke of your creditor. Not that you are bound hand and foot, but your moral freedom is circumscribed. You feel an influence compelling you to take your butter, eggs and other marketing to the man *who has been accommodating you;* until finally you even lose the courage to be careful about the prices of what you buy and sell. So, also, with your wheat and corn and bacon, and if a rise in prices is probable, your merchant *friend* has all at once an urgent call for money to meet a note in bank, or he is to start east in a day or two. You have had no money for along time, but your wheat is just thrashed, so with a great deal of reluctance he consents to take that, at a very low figure, and you scarcely retain enough for seed and bread. In short the mortgage is foreclosed, but it is renewed again upon the next crop, for somehow it happens, you can't quite pay up the "old score" and you are compelled to trade another year upon "tick."

A farmer thus hampered, is doomed to get behind hand in his work, behind hand in his improvements; behind hand in the comforts and pleasures of life—he will suffer in the pocket and spirits all the time, and finally, when his health is impaired, the vigor of his prime exhausted, and his last acre sold, capital and credit will expire together. I believe with the eccentric statesman of Virginia, that the philosopher's stone is, "*pay as you go, pay as you go.*"

There is but one safe rule—never get in debt, unless it is unavoidable—limit it then as much as possible, and extinguish it without delay. When you have entered upon the arena of active life, never promise without the ability to pay—incur no indebtedness which you cannot discharge the moment it becomes oppressive, and, my word for it, the man who owns but eighty acres of good land, yet acts upon these maxims, accepts the aid of science, and experience, and is upright, temperate, economical and industrious, cannot fail—he must and will become one of the "solid men" of the country; and long before the shades of that endless night, which is sure to come, are descending around him, he will have acquired that comfortable independence, and approving conscience, which ensures a happiness that few other professions can promise. And, at last, having manfully discharged every duty, with his integrity unsullied, the consummation of a well spent life will be his. What, then, will it matter to him if life does go out in silence, and with no great din of ostentatious public grief? Over his memory, at least, the cruel reflection will never be made—

"What millions suffer, that Cæsar may be great."

I am reminded, by her presence here to-day, and by the many substantial and beautiful products of her industry and skill exhibited at our fair, that woman, too, holds an important relation to the success and pleasures attendant upon the business of Agriculture. She is an economist as well as a producer—over everything pertaining to the manifold duties of in-door life, she is the presiding genius. Whatever of taste, of cleanliness, and of comport fills our homes, is owing to her care and supervision. In fact, the whole field of domestic economy, and the thousand nameless graces that lighten the wearriness of toil, are peculiarly her own. And when we reflect that, in a worldly view, in addition to present happiness, the great object of life is to secure a quiet retreat for the protection of our declining years and of those we love, how important becomes the sphere of woman as a wife,

a housekeeper, and mother. There is, or rather, ought to be, nothing that we eat, drink, or wear, that does not pass through her hands; and a little habitual carelessness, indifference, want of skill or intelligence, will easily double this chief branch of expenditure. And how like a fetter upon the ambition and manly struggles of the young farmer just starting in life, is even the unintentional improvidence of his help-mate. On the other hand, let once the evidence of her thrift and economy, of her untiring industry and watchfulness, of her taste and intelligence be visible from cellar to garret—in the tidiness of her own person—in the appearance of her children, and in her little yard of "flowers, bright flowers;" while, at the same time, over and around all she throws the indescribable charm of unwavering affection and cheerfulness—and where is the heart that would not feel strengthened for the great struggle of life? where the soul that would not feel a greater self reliance? Ah, my fair country women, though selfish man may never permit you to vote at our elections—to represent him in Congress, or to lay aside as *weak minded*, the sweet modesty of your sex—still is your mission co-equal with his, and the happiness of both identical. If he succeeds in business, it is because your aid and sympathy have cheered him on; and what is more, and dearer than all, you alone can make him realize, that

"'Tis Home where'er the heart is—
Where'er its loved ones dwell."

And now, fellow citizens, my task is done. For what I have mis-stated, if anything, I can offer no excuse but want of information, which, in the midst of professional engagements, I have been unable to supply. But the study and spirit of investigation which I have, in an humble way, endeavored to recommend, will enable you to correct all my errors. And now, in conclusion, permit me to remind you that in no part of the world are equal inducements offered for the perfection of agriculture, both as a science and an art. Possessing an area only about one-sixth less than the fifty or sixty empires, states, and republics of all Europe—with a national policy that tends to the preservation of universal peace—a commerce that visits every port in Christendom—a diversified soil and climate suitable to the culture of almost every production of the earth—the United States furnishes an unlimited field for the development of the great scientific and practical truths of husbandry.

And where shall man find a happiness more rational? *Other* pursuits loose their charm as we near the confines of life; but how often, in his declining years, does the statesman, the merchant, the mechanic, and the professional man turn away from the corroding cares of his former occupation and seek the delightful quiet, the peaceful and healthy retirement of a rural home. Toil on, then—gather knowledge as you toil—improve your taste—keep clear of debt—indulge no habit that you would not wish your own children to imitate—hold every promise sacred—be prudent—be persevering, and the battle of life is won—the great struggle for a dear home and its heart pleasures, and for that easy competence which unfetters the chained spirit is over—the rich harvest fruits of honorable labor are yours.

REPORT

Of the Committee on the cultivation of Corn, made to the Agricultural Society of Franklin county, June 2, 1855.

The committee to whom was referred the subject of the cultivation of corn, would report that in view of the fact that almost every person or family residing in the country or country towns, are farmers so far as raising a *patch* of corn is concerned, and as a consequence, almost every one has his own way of cultivating the crop, conforming to circumstances that surround them in many cases. And it is not only true that almost every family, whether farmer, physician, merchant, or lawyer, raise their patch of corn, but it is also true that the aborigines of our country did cultivate their patch of corn and squashes, and it was an occasion of general feasting when the first fruits of their corn were gathered.

All this being the case, almost every one understanding not only the use, but also the cultivation of this grain, it is not at all likely that your committee could suggest a system of cultivation adapted to all who are engaged in the raising of this kind of grain, but your committee think that a few suggestions may be made that will meet the case of almost any one who wishes to raise corn. And here let it be remembered, that a greater amount of nutriment, both for man and beast, can be raised from the acre of this, than of any other kind of grain. This being the case, we think that any hints of a more improved mode of cultivation, or that will lead to a more improved mode, will be appropriate.

True, the subject referred to your committee was the cultivation of corn, but your committee think they will not travel out of the sphere of their duty to speak of the preparation of the ground, and also of the planting, as well as of the cultivation. Your committee are aware that the suggestions in relation to the preparation of the ground and the planting will come to hand too late this season to be of service to any except those who have fortunately delayed or been hindered from planting at the usual time, and thereby avoided that pest to the corn — the cut worm.

1. Then, of the preparing of the ground, and here we would say at the very commencement of the subject, that deep and thorough plowing in almost every kind of soil is necessary in order to raise a good crop of corn, and more especially if the ground be clay or on a clay bed; this, as every person must know, who has any practical knowledge of raising corn, will enable the roots to penetrate so deep and draw so much moisture that it can resist much more successfully the drouth, than it otherwise could; and your committee is of the opinion that a system of cultivation so deep and thorough might be adopted that unless a drought was of a most extraordinary character, it would not effect the crop at all.

2. Of the seed and planting. Let the seed be selected from the largest and the soundest ears — of the kinds we will let the farmer make his own choice — we have but two among us, the red and the white. There are several varieties of each kind. The seeed now being ready, the question arises, can anything be applied to the seed to prevent the mole, the squirrel, and other things that infest the corn fields from taking it up?

To this we answer we believe there can. And here we will state a fact we got from one of our neighbors a few days ago, and we will state it in his own words as near as we can: "I have," said he, "a receipe in an almanac, saying that to one bushel of corn add one pint of tar. Pour the tar on the corn in a vessel large enough to hold a considerable quantity of water, then add water as warm as the corn will bear without injuring the germ; then mix the water, corn and tar thoroughly; then before dropping it roll it in lime, ashes or corn meal, to prevent sticking to the fingers."

He informed us that when the corn was thrown to the chickens in the yard they refused to eat it. He said, also, that one field that was planted with this seed remained entirely uninjured, while a field on the same farm, and nearly joining it was one-half destroyed by moles and other vermin, and we now have but little doubt but if we had prepared the seed in the manner above alluded to, we should have saved the replanting of near three pecks of corn on twenty acres. As to the cut worm we believe there is no remedy for it except "sunshine and shower," unless you break your ground late in the fall, or resort to that objectionable expedient of listing your ground. Of the planting, your committee need hardly speak, as almost every one checkers their ground, though we believe the largest product per acre has been where the corn was drilled. A portion of manure put into each hill will well compensate the farmer for his trouble.

And now for the cultivation. And here we would remark that almost every farmer has his own system of cultivation, and hence in our remarks we may cross the system of some who are very successful corn raisers; but we give ours and let it go for what it is worth.

First, then, the running of a single furrow in the corn, immediately after it is planted, is an advantage in several particulars. It will annoy and disturb the moles, and affords worms &c., for the birds that are sometimes very troublesome, and to some extent deceives them as to the whereabouts of the corn, if they are disposed to take it up. Leaving to our choice we would prefer running the furrow the way it was crossed first. This being done, the roller may then be introduced, if your ground is cloddy, either before or after your corn is up. From fifteen to twenty days having elapsed after planting, the one or the two-horse harrow or the cultivator may be used. The ground being now thoroughly pulverized, the "bull tongue," as it is called, may be introduced, and now is the time to commence the making of the corn crop. If it is seasonable, let the cultivation, whether with the "bull tongue," the shovel or other kind of plow, or the cultivator, be deep and thorough, and especially do not let dry weather deter you from your labor unless too long a time has intervened between times of plowing. And now your committee would add that they are of the opinion that one furrow run; then the roller, if cloddy; then the harrow or cultivator once or twice; then twice plowed twice in a row, and once plowed three times in a row, with a small portion of hoeing will produce in ordinary seasons a fair crop of corn on almost any of our lands.

From three to four stalks we think sufficient in the hill, and let the thinning be done at as early a day as possible. 1. Because it pulls up easier. 2. Because it injures those you intend to let stand less. The time of planting will be governed,

to some extent, by circumstances; we think, however, that other things being equal, the chances of a good crop are in favor of early planting.

In conclusion, your committee would say, that if these remarks, hastily thrown together, shall in any way subserve the purposes for which they were appointed or the interests of the society, or even cause five ears of corn to grow where only four had grown, they will feel themselves abundantly compensated. All of which is respectfully submitted.

A. B. LINE,
J. H. FARQUHAR, } *Committee.*
T. PURCELL.

After the reading of the report, several persons present gave their views in substance as follows.

Rufus Hinkley said that his experience corroborated with the opinion of the committee as to the use of the roller. It pulverized the ground and made it plow better. By all means he would plow deep, and if possible, once a week. He would not plow after it began to shoot. He would not hill it up, but would prefer to lay it by with a cultivator.

C. B. Moor was raised a blacksmith but now knows how to raise good corn. He is in favor of plowing deep before planting, but never afterwards, at most not after it had grown much. He prefers to "lay by with a cultivator or harrow." It brings better corn and leaves the ground in better order for gathering and for future plowing.

Mr. J. P. Brady was interested in raising corn, regarding it as the most important crop we raise. He believes in deep plowing before planting. He has tried to guard against the worms. Heretofore fall and winter plowing of sod had guarded against them. A few years ago he plowed a part of the field in the winter, and left some for spring. The winter plowed had no worms, the spring plowed was destroyed. But this season his preventive had failed, and some neighbors had failed in the same way.

As to planting, he prefers to "cross off" and plant, and not to drill. He first goes over the field, after the corn is up, with a two-horse harrow, then with a plow, then with a cultivator, then with a plow, and "lay by" with a cultivator. He objects to plowing deep, after the corn grows up, as it breaks the roots.

S. Shirk.—I have been in the habit of plowing deep during the cultivation, and laying by with a cultivator. I plow deep, cross off about three and a half and leave three stocks in a hill.

Dr. Haymond thinks deep plowing before planting is advantageous, to give the roots a chance to run down. They would run several feet deep if the soil were loose. He thinks that deep plowing after the roots have spread much, is very objectionable, but he speaks more from observation than experience.

Enoch McCarty thinks that the depth of plowing depends on the soil. Good soil requires deep plowing. He prefers planting with a drill, or to plant but one way. He likes the bull "tongue" or "gopher" plow, better than any he has used. If the ground is wet, the ridge should be thrown up and the corn planted on the ridge. He thinks the speckled corn will produce the most, but not the heaviest or richest corn. He has plowed corn after harvest and thinks it pays well, particularly if the corn has been well plowed earlier. He has plowed when it was in silk.

If the ground was cloddy, he would prefer to roll it before planting, or before the corn was up, but not otherwise.

A. B. Line said he thought it best not to plow late, even if it were weedy, especially if much time had elapsed since plowing. He thought this season the worst for worms he had ever known. On his farm, a field that had had rye last year, suffered badly from worms, and one planted in wheat stubble almost escaped, though no material difference in the time or manner of planting. He could not account for this. He believes rye nearly equal to clover as a fertilizer.

Mr. Brady insists that though the winter plowing has failed to kill the cut worms in a few instances, yet he believes it is the best preventive and would recommend it.

Dr. Goodwin had tried drilling, but the trouble of plowing but one way over overbalanced the rapidity of planting. He believes in using the roller. He uses the roller as soon after the corn is planted as possible, and rolls it across the last furrows so that it will fall into the furrows and on the hills of planted corn. Has suffered from the worm greatly this season. Finds them worse in low back ground.

Enoch McCarty would break up sod ground in November, as a preventive of worms. He is so confident of this that he will warrant it as a preventive. If he could not plow sod in November, he would not plow sod until about the first of June.

O. M. Bartlow related that a friend of his put in twenty acres of sod who has not suffered from the worm. He plows in the spring, *in the dark of the moon!*

C. B. Moore's experience in reference to November plowing was the same as Mr. McCarty's. Plow in November, or early in June, if you would kill the cut worm.

Dr. Haymond had had his garden spaded in November, but he had put on manure enough to preserve the worm, hence his experiment had failed. He thinks a winter of frequent freezing and thawing unfavorable to the cut worm.

James Everett says he is in the habit of plowing later than most of his neighbors — at least twice after harvest, and he is satisfied that it is profitable. On his farm the worm is most destructive in the black low lands. He thinks, November breaking up good to prevent the worms. He aims to go through his corn six or seven times. He uses the roller before and after planting. After planting, he uses the roller so as to cross the last furrow and let it drop into the furrow and on the planted corn. He does not like to lay by the corn with a cultivator, but with a heavy shovel plow. He is not afraid of breaking the fibrous roots that run across the rows.

ESSAY ON AGRICULTURE.

BY ALBERT HONEYWELL, OF FAYETTE COUNTY.

Farming is a noble and independent avocation. The hungry millions are fed by the hand of the farmer. It is also an honest business. The farmer has no need of shaving and skinning for a competence. God bestows an abundance upon him, as a just reward for his manly toil and honest industry.

Farming seems to be the natural employment of man. It gives the best physical development and the best practical judgment. Some of the greatest statesmen and generals were practical farmers.

The natural position of the farmer is a high position. They need look up to no class for instruction and wisdom, unless they have neglected to improve those opportunities for improvement which nature has favored them with.

I would entreat farmers to inculcate their sons with the nobleness of their profession, and discourage them from a desire to enter into the petty business of our cities and towns, where they have to give up a part of their independence and become hewers of wood and drawers of water to the public.

The science of farming is yet in its infancy, and every farmer should endeavor to contribute to its advancement. Every thing done on a farm should be done in proper season, and done intelligently and skillfully; and when thus performed, farming is a delightful and profitable business.

We should always bear in mind that poor farming impoverishes us, and that good farming makes us rich. Hence no man can afford to be a poor farmer, because the expenses of poor farming are nearly equal to that of good farming, whilst the clear profits of good farming are a hundred fold greater than the profits of poor farming.

No nation can afford to have her farming business poorly done. For good tillage is the foundation of general prosperity. Therefore, every person is deeply interested in the agriculture of the country.

No farmer can afford to till poor land; for the clear profits of one acre of rich land will perhaps exceed the clear profits of twenty acres of poor land. No farmer can afford to keep poor stock, poor fences, sow and plant poor seed. It is a losing game when thus followed, and the sooner he quits it the better. But he can afford to save his manure and properly apply it, and keep his farm well fenced. He can afford to sow clover and let it grow so as to shade the groundwell, in order that the soil may mature for the sustenance of crops.

He can afford to give two prices for good seed to plant and sow, and also for good stock to breed from; and can afford to take good care of it and keep it in a thriving condition, and he can afford to plow deep and till thoroughly also.

The buildings on a farm should be conveniently arranged; the fields should be handsomely laid off, and every field should be well supplied with good gates, and the fence corners and all the spare ground should be set in grass, and the farm should be kept clear of noxious weeds.

No pains should be spared to grow fruits of the very best kinds, as valuable fruit can be raised about as cheap as the worthless can. Good sweet apples are, without doubt, the cheapest thing the farmer can raise to fatten his stock on.

A farmer should have completely developed animals, of the very best breeds, to raise stock from; they should be well muscled and heavy bodied. Such possess great organic strength and are easily fattened.

Every farmer should have a supply of good farming tools; and it is bad policy to try to do without them.

Before the frost is out of the ground in the spring, the stock should be taken off the stalk fields and inclosed in their proper places, and allowed to tramp the ground up whilst it is soft; and they should not be turned on the pasture until it has attained the height of six or eight inches. By thus doing it will produce double the pasture it would if pastured close and the ground trampled whilst it was soft.

As time is valuable to the farmer, and especially so in the spring, he should endeavor to make an early start and get his oats in as soon as the season will permit, and have them out of the way of other business.

Corn grounds should be plowed deep and the poor places manured. It should be completely furrowed, three and a half or four feet apart, each way, and then planted the way the first furrows were run. By thus doing it can be worked much better and more easily than by the common method. Corn should be worked sufficiently without regard to the number of times it has been worked.

Clay ground is the best for potatoes. It should be plowed deep and planted with one good sized potato to the hill, and worked without hilling up much; and if seed is scarce, they may be transplanted, when six or eight inches in height, as well as sweet potatoes can, and by planting one sprout in the hill, which is sufficient, a bushel will be enough for an acre.

Harvesting should be done up carefully and in good season. Wheat, with us, is a very uncertain crop. It is made so principally by bad farming. Good grass lands plowed in June, replowed in September, and sowed with wheat that is not subject to the rust, would generally insure a good crop.

In the fall, when the ground is hard, the manure should be all hauled out, the fencing repaired, and wood got up for the season.

Hogs should be put to fatten before the weather becomes cold and boisterous. They should have free access to water, and be kept in a quiet and comfortable condition.

Apples for late keeping should be carefully picked from the tree, and handled as carefully as eggs, and then kept cool and dry.

Throughout the winter, stock should be sheltered from the inclemencies of the season, and well supplied with food.

It is good policy to steam or grind grain for stock. The kernel is made up of cells, which, if not crushed or bursted, will retain most of its strength.

ANNUAL REPORT

OF THE

INDIANA STATE FAIR, FOR 1855,

TO THE

STATE BOARD OF AGRICULTURE.

BY L. BOLLMAN, ESQ.

The Reporter for the State Board submits the following report:

Having received the appointment of Reporter, without any specific duties assigned, I have endeavored to present such matters growing out of the Fair of 1855, as I considered most useful. I have not followed the course taken in my report of the first State Fair—a detailed statement of the exhibitors' names and the things exhibited—for this has been done by the newspapers of Indianapolis; but I have grouped together the leading animals and articles of each class, making such observations on each as may serve to further improvement in future. The following matters are noticed:

1. General remarks relative to the success of the Fair.
2. Of the Fair Grounds.
3. Of Horses.
4. Of Cattle.
5. Of Hogs — best breeds—crossing, &c.—Bacon, methods of curing and keeping.
6. Of Sheep—different breeds.
7. Of Asses and Mules.
8. Of grain crops.
9. Of fruits—kinds of trees—situation of orchard—peach borer
10. Of butter and cheese—methods of making.
11. Of vegetables.

12. Of agricultural implements—best selection for certain localities.
13. Of carriages and wagons.
14. Of stoves.
15. Of home-made manufactures.
16. Of manufactures by machinery.
17. Of mechanical productions.
18. Of paintings and drawings.
19. Of flowers.
20. Recommendations for better arrangement of articles, and making known their character, names of owners, breeds, ages of stock, &c.

1. Every one has rejoiced to know that the Fairs are permanently located at Indianapolis. Its central position, its easy access by railroads, and its great capacity to entertain a large concourse of strangers, makes this city desirable for all. The fixtures of the grounds are of the most substantial character, which could not be so long as the Fairs were held at different places. The arrangements, being permanent, will save a future heavy expense; and seats, a greater subdivision of departments, and a decoration of the grounds, can gradually be made.

A leading feature of the Fair was its complete success. Everything favored this result. The weather could not have been finer; the entire arrangements were so ably carried out by the President, Superintendent, clerks, and police, that no accident or unpleasant disturbance occurred.

2. Although the fixtures of the grounds were not complete, yet they were stopped at the right point, that experience might more certainly indicate how they could best be completed. The floral tents constituted an agreeable variety to the frame departments, and their circular form and raised center gave opportunity for a fine display of the articles exhibited.

It is understood that the President has suggested the removal of the sheep pen to another part, and placing there another tent for the exhibition of young mens' work—an excellent idea, and one characteristic of the taste and judgment of that officer. But the want of sufficient and comfortable seats was complained of by all, and these ought to be made. Where the reporter's shed now stands, a semi-circle of seats might be made, with a speaker's stand a little advanced in the center, as in the Hall of Representatives, so that his entire audience might be comfortably seated. Here might be delivered one or more addresses, on each day of the Fair, whilst the weary were resting.

The horse ring will always constitute a leading attraction for visitors. The level character of the ground prevents nearly all from seeing, and around a portion of it raised seats might also be erected. Should these not be enough, others might be made against the canal and fence at the southwest corner; for here the fence casts a shade that was sought for by many.

The hog and sheep pens ought to be covered, for a rain will make them unpleasant, and we cannot always expect such weather as we have had. Clusters of evergreen trees might be set out in different places, which would add variety to the general view, and at the same time promote a taste for such ornaments of grounds.

3. The exhibition of horses was vary large, and among them were many superior animals. After classing them into farm, draft, carriage, and riding horses, I endeavored to trace the stock of each of these divisions; but I soon found that this was a hopeless undertaking; for nearly every horse had a stock after his own name, indicating a mixture of breeds not calculated to perfect the horse—an error that has been avoided in the breeding of nearly all other stock except the common stock of our country.

The farm horses exhibited had too much coarseness and awkwardness in their movements. No distinction should be made between the farm horse and one for general purposes. For the uses of the farm, especially mares for breeding purposes, demand action and beauty of form. The progeny of these coarse brutes fill our State; and at every cross roads one of these two dollar and fifty cent animals may be found. It is to be hoped that they will be discarded from our fairs.

There were two varieties of the draft horse exhibited—the Canadian and the English. The first was a small horse as to height, but strongly muscled, with action well suited for the plow and the wagon. The other was a heavy black horse, said to have been imported from England, with powerful muscles, but fitted for the dray alone. Hence they never will be bred to any great extent. And even for the purposes of the dray, less bulk and more speed are preferred, except in such a city as Pittsburgh, where iron is drayed over streets paved with the large round pebble stone. In such cases bulk is desirable to resist the jar of the dray.

The carriage horses were more numerous. Of these the Highlander stock was best represented, by a gray from Ohio and a black from Hendricks county—of fine size and lofty bearing, with good action, they would be unsurpassed in harness. Close upon these was Halcorn, of Putnam county, of the Virginia and Kentucky stock, but still differing much from the racer.

The most numerous class was the riding horses, showing in their size and form their descent from the Kentucky racers, but bred with every mixture of the various subdivisions of that descent from the English racers.

Of these breeds, I regarded it as important to choose one best adapted for profit to the farmer, not simply for the purposes of the farm, but for sale also. To aid me in such selection, I examined the reports of the committees on horses, supposing that in making their awards they would have noticed in detail the points of the successful competitors, and the general fitness of the horses for the purposes for which they were exhibited, accompanied with remarks on the breeds and breeding of horses, such as the exhibition and their own experience were calculated to suggest.

For instance, in awarding the first premium to Proud American, of Wayne county, over Chancellor, the black Highlander, of Hendricks, why did not the committee state the respective merits of both horses? Such a statement would have informed the readers of the reported transactions of the Board of Agriculture of the points constituting a good horse, and of the respective merits of different breeds. Instead of such a report we have nothing more than the naked award. A similar course has been taken by all the committees on stock, except that on hogs. Even the committee on sweepstakes on bulls, which could not come to any

decision, failed to state the merits and imperfections, in detail, of the competing animals.

The State Board should require such detailed reports—that the same course be pursued as is taken by the judiciary of the State, and then there will soon go abroad that information which it is the object of our annual volume to disseminate.

In the absence of such reports from the committees, I have collected such information as will be useful, on all subjects noticed in this report.

Of the breeds of Horses best adapted to our State.—These, in my judgment, are for the harness and the saddle. We have no markets for heavy draft horses, the mule being used in the south for working. The harness horse, especially matches, are most in demand, and command the highest prices. Such horses must have size, action, endurance, a lofty carriage, and good dispositions. The two dollar and fifty cent stallions have none of these qualities but the first. They are ill tempered, with no beauty of carriage or movements, and are bad travelers and workers.

Of the breeds exhibited at the Fair, the Highlanders were best adapted for the harness. But the Morgan has the most general reputation, and, therefore, I add a description of that celebrated stock.

The Farmers' and Planters' Encyclopædia says: "Perhaps the very finest breed of horses in the United States, when general usefulness is taken into consideration, is what is commonly known in the northern and eastern States, as the Morgan horse. This breed is distinguished by its activity, united with strength and hardiness. Its size is moderate, and though not often possessing the fleetness which recommends it to the sportsman, it has enough speed to entitle it to the appellation of a fast traveler. Their usual height is from fourteen to fifteen hands, color bay, make round and rather heavy, with lean heads, broad and deep chests, the fore limbs set wide apart, legs clean and sinewy, short, strong backs, with that projection of the ribs from the back bone, which is a sure indication of great development of lungs, and consequently of great wind and bottom. For saddle, draft, and other purposes, the Morgan horses bred in Vermont, and in all the eastern States, including the northern and western part of New York, are so much prized as to command much higher prices in the principal cities of the Atlantic States than horses from other parts of the Union."

This breed is said to have originated in Vermont, about 1804, from the French Canadian horse and the New England mare. The objection to it arises from its size, and the Ladds, of Ohio, who breed the Morgan, are about to cross it with the Messenger stock, a cross having the highest repute. The New York Spirit of the times says:

"Ten years ago, to drive a horse seventy miles between sun and sun, would have been deemed a great performance; but since strains of the blood of old Messenger have been introduced into our road stock, at the north, hundreds of horses can be found that can travel from eighty to ninety miles without distress. In our paper of this day is a report of the performance of a horse in Boston, that, without being trained, was driven 103 miles between sunrise and sunset, over a hilly road, before a carriage, which, with the rider, weighed 470 pounds."

Performances like these have given to the Messenger and Morgan stocks their reputation, and their introduction into our State should not be delayed.

The *saddle* horse among us is derived from the Virginia and Kentucky stocks. The demand for these will be lessened rather than increased; for the general use of the buggy and other light vehicles, is superseding the saddle But the pacer will always be valuable when that gait is a natural one—the forced pace being the most worthless of gaits. Yet no systematic mode is pursued to build up a pacing stock, as the exhibition of the ring at the Fair clearly showed But few of the pacers had that easy movement or reach which the natural pacer ought to possess. It is a common practice to cross a trotting mare with a pacing stallion, thus mixing together forms essentially different. Sometimes the pace predominating, other times the trot, and in other instances, such a mixed gait that it is no gait at all; and most generally, in all these cases, the animal is inferior for the saddle. Hence the universal disappointment which farmers experience when they go about raising a pacing colt. To do so successfully, both parents should be natural pacers, descended from a pacing stock. "Like produces like" only when the parents are alike, or one superior to the other in the *same* qualities.

In the Transactions of the Wisconsin State Agricultural Society for 1853, there is an essay on the form, breeding, and general management of the horse, by C. L. Martin, of Beloit, which, in a short space, comprises so much useful information, that I recommend its republication in the next volume of our own reports.

4. Any State might well boast of the Durham stock exhibited at the fair. There were fourteen bulls in the first class—all fine animals, and among these, five might be regarded as of superior merit. *Balco*, owned by Mr. Meredith of Wayne county; *Gold Dust*, belonging to Mr. Johnston of Putnam; *Fancy Boy*, from the same county, and owned by Mr. Stevenson; *Belmont*, from Fayette, owned by Caldwell, Loder & McCallom, and *Lord Albert Turley*, the property of Mr. Lingenfelter of Hendricks.

It is to be regretted that the committees which examined these animals did not state in detail their good and defective points. For many of our best farmers gave them a careful scrutiny, and of the many I heard express their opinions, not one coincided with the first committee as to the first premium. But as the committee was selected with especial reference to their superior judgment, their decision must be regarded as correct, and by giving a detailed statement of the grounds of their decision, others could have seen wherein they erred. The judgment of committees ought to be regarded like the judgments in courts of law—matters to be scrutinized, talked about, and written about, for in this way alone the masses learn what is right and what is not. Correct knowledge in reference to the points of Durham stock is especially necessary at this time, when so much of it is brought into the State without one-eighth of blood, and yet, with pedigrees asserted to be ganuine, showing full bloods and thorough breds.

In the absence of such reports, I give a few of the leading points of a good and pure Durham.

1. *The purity of the breed.* This purity, says a writer, may be ascertained from the color of the skin. The bald skin on the nose and around the eyes is always *definite* and *without spots*. In the Durham it is usually a yellow cream color, and if the blood is not pure it is usually clouded with darker colors.

2. *The form of the body.* Viewing the animal across the points of the shoulders, the width should be nearly as great as across the buttock, his back should be

straight, and the line of the belly or abdomen, should run parallel with the line of the back, which brings the flanks low down; his width across the hips should be equal to his depth from the hip to the flank, and from the hip to the outer edge of the buttock, thus making the hind quarters a square. This width across the hips, in the best animals on exhibition, was about *two feet and two inches*. *Belmont* was two inches less than the others I have noticed by name. This squareness of form should continue to the points of the shoulders, and the *fuller* the animal is between the back bone and the center or turn of the ribs, the more nearly he squares.

Such an animal, viewed from behind, along the back, has a broad flat back, and in this respect, *Belmont* was said to be superior to the others. The entire carcass, therefore, presents the form of a *parallelogram*, having, as some writers say, the length *double* the breadth. I think the length should be more than that. The *heavier* the animal is above the center of the ribs the better his points, because on the upper parts are the most valuable meat.

3. *The skin.* The Edinburgh Quarterly Journal of Agriculture thus speaks of it:

"The skin affords what is technically and emphatically called the *touch*—a criterion second to none in judging of the feeding properties of an ox. The touch may be good or bad, fine or harsh, or as it is often termed, hard or mellow. A thick, firm skin, which is generally covered with a thick-set, hard, short hair, always touches hard, and indicates a bad feeder. A thin, meager, papery skin, covered with thin, silky hair, being the opposite of the one just described, does not, however, afford a good touch. Such skin is indicative of weakness of constitution though of good feeding properties. A perfect touch will be found with a thick, loose skin, floating as it were, on a layer of soft fat, yielding to the least pressure, and springing back to the finger like a piece of soft, thick, chamois leather, [or a piece of the best silk velvet,] and covered with thick, glossy, soft hair. It is not unlike a bed of fine soft moss, and hence, such a skin is not unfrequently styled "mossy." A knowledge of touch can only be acquired by long practice, but after having acquired it it is of itself a sufficient means of judging of the feeding qualities of an ox, because when present, the properties of symmetrical form, fine bone, sweet disposition and purity of blood, are the general accompaniments."

4. *The head, neck, tail, and legs.* The *head* should be small and set lightly on the neck, with a broad scull and a bright, lively, and placid eye. The *neck* should lose itself in the shoulder, and to do so must fill out well to the point of the shoulder. In the bull it may present considerable thickness on the upper part. The *tail* should be rather large where it comes out from the back, for as in the horse, it indicates strength, and should taper down to the tuft of hair. The *legs* should be short, for as Mr. Youatt justly observes, "there is almost an inseperable connection between length of leg and lightness of carcass, and shortness of leg and propensity to fatten." This is seen in the long legs and light bodies of our Patton stock.

Having laid down these brief directions to the farmer in the choice of a good Durham, the subject of *shelter* cannot be overlooked, for as it is the common practice to give none to our common stock, a like practice towards the Durham will result speedily in its deterioration. In England, this stock has always thrived

best in sheltered and fruitful valleys, where the winter is mild contrasted with ours, yet even there shelter is especially cared for. The early and full development of this breed uncompromisingly demands that at no time of its existence should its growth be arrested, but that the winter's keep should be such as will send it to the early pasture in the best condition.

The *fat* cattle exhibited, showed the superior value of the grades over the common stock. Their weight at four years old, ranged from 2,155 pounds to 2,410 pounds. Some of these were but half bloods, and out of scrub mothers, small at that. These animals had not been stalled during winter, but were furnished with sheds to go under whenever they chose. The heaviest of these had been fed during the last two winters *sixteen* ears of corn twice each day, and half that amount during the past summer, with "reasonable pasture." Their growth during the *third* year was 300 pounds each, and during the *fourth* year 200 pounds each. At the end of the *third* year, the owner had been offered $225 for two, and he expected to get $300 for the two, at the fair. The owner states that they did not eat as much corn as common stock that he had, but the grades were sheltered, the others not.

These facts are stated that farmers may not only determine the relative value of the grades and common steers, but also the profitableness of keeping cattle until they are four years old. For it is very certain that the slaughter of so many at two and three years of age, is calculated to keep them scarce.

Levi Druly, of Wayne county exhibited two *half* bloods, four years old, weighing about 2,200 pounds each. In summer they were on pasture, without other feed, and fed about half of last winter with *half a bushel* of crushed corn and cob meal twice a day to both. They had no shelter. Their entire cost he estimates as follows:

120 bushels of corn at 40 cents, ...	$48 00	
18 months of pasture each, at $2	96 00	
Whole cost, ...		$144 00
2,200 lbs. each, would be 4,400 lbs., at 3½ cents, the highest market price here for common stock, ...		$154 00
Profit only, ...		$10 00

Estimating corn at 30 cents a bushel, the general price in good seasons, would increase the profit to $22, which is still entirely too small. To make it pay, beef should not be less than five cents gross or ten cents net. Yet Solon Robinson of the new York *Tribune*, desires that no more than that should be given in New York.

These facts indicate that there is much truth in what so many farmers say, that there is no profit in keeping cattle beyond the age of two and a half years. Where cattle can be herded on the prairies and during winter fed on corn grown at a cost of eight and ten cents per bushel, the case would be different.

Corroborative of the experience of Mr. Druly, is the statement given by Mr. Robinson, a stock raiser of Fayette county in this State. He sold a fine lot of grades in New York, remarking that he did not realize 25 cents a bushel for his

corn fed to them, but would have done better had he fed it to any other kind of stock. What then shall we do? Cease to improve our stock, or to keep cattle at all? Not so, but we must make warm shelters to supply the place of corn. Mr. Stevenson, of Putnam, remarked to me, that during last winter he had no corn to give his stock, but hay and straw only, with warm bedding and good shelter; that a relative of his had plenty of corn, but no shelter; that his own stock looked well in the spring, and his relative's miserably poor. His experience is mine: we must lessen the food consumed, by keeping our stock warm and dry: we must have well sheded barns in the place of fence-rail corn cribs; and well-manured meadows, with small corn fields, instead of large fields exhausted by severe cropping, and ourselves too, exhausted by the severe toil of cultivating them. Try more shelter and less corn, friend Druly.

The exhibition of cattle was defective in two matters: in the show of Devons and of milk cows. The Devons ought not to be subjected to competition with the Durhams. The *relative* profit of these breeds has not yet been fully tested, and therefore, the former ought to have separate premiums awarded to them.

I have examined every report from the societies of other States, to find whether any of them has determined this question, but they have not. Those who own Devon stock prefer them, especially in the more northern districts; whilst the owners of the Durhams are tenacious for their superiority. Where oxen are much used and the milking property regarded, the Devons are preferred, but where beef is wanted, the Durhams. For, in the absence of accurate experiments to determine the relative value of animals, size is sought after.

It is a matter of regret that milk cows are not brought to our fairs, but the reason is obvious — we have no milking stock in the State, and as there are consequently no breeders in that line, there are no exhibitors. It cannot profit the owner of a good milk cow of the common stock to show her, because her calves may make indifferent milkers. Indeed, there is almost a certainty that they will be so; such at least, is my own experience, and of many others with whom I have conversed. But still their exhibition ought to be encouraged, that the points of the best may be compared, and by such comparison the signs of a milker determined. Mr. Guenon, a French dairyman, has laid down the "*escutcheon*" theory, which I have to a considerable extent tested, and regard it as one of the most certain methods yet pointed out.

The ascending hair from the udder to the tail, is his *escutcheon*; and without stopping to notice his classes and orders, or the marks of descending hair on the escutcheon, I may remark that the *broader* this line of ascending hair, the more it reaches out on the thigh, the *more milk* the cow will give. Its *richness* he determined by the hair on the udder; if it is short, thick, and of a soft, silky character, the milk will be rich, but if on the contrary, the milk will be thin.

If the skin be yellow and handles well, if the teats are wide apart, which shows each one of the four divisions of the udder are well developed, if the disposition is placid, and the blood system well developed, indicated by a large milk vein, as it is called: and if the body is deep from the hips to the flanks, which denotes room within for a well filled paunch, there is certainty of a good milker. But how the milking property can be made transmissable, is a question of difficulty. Of our somewhat improved stock, the Patton are the best milkers. Having a cross of

these, with a good skin, a mild disposition, and rich milk, but deficient in quantity. I purpose crossing with a Durham to increase the quantity, and then with a Devon to make it hereditary. An Alderney would be better.

Hogs—The most complete part of the exhibition was this one. Not only as to numbers and the excellence of the animals shown, but as to breeds and crosses, it was far superior to all other of our State Fairs, and perhaps not equalled by exhibitions in other States also.

Of the breeds, there were the Suffolk, Leicester, Poland, and with crosses, the Byefield, Grazier, Russia, Bedford, and Chester White.

The committee on hogs have given a report proper to be published among the transactions; for it points out a course by which farmers should be governed in the improvement of this stock. They recommend the Poland as the base of the crosses, because this breed, in its form, size, disposition to fatten, and bone, are best adapted to the wants of the Indiana farmer. They believe that by first crossing with the Leicester, and then with the Suffolk, its tendency to fatten may be increased, without impairing materially its size, shape, and bone.

This breed is of dark color, and has a broad, pendent ear; a white color and a small erect ear, are generally preferred. The crosses above named, it is believed, would do away with these objections.

For my own part I prefer them as they are. I first saw the Poland stock at the Bartholomew County Fair, two years ago, and from my examination of them then, was satisfied of their superior qualities. Whilst looking at them, several farmers objected to them because they were a corn crib stock—their ears prevented them from finding mast and other food for themselves.

At the State Fair I purchased two pairs, their ears very broad and hanging down nearly to the point of their short nose; but more industrious, active, feed hunting pigs I have never had. In one particular, however, I see a marked difference between them and what is called good common stock. Let a rain soften the ground, and the long snouts of the latter are up to their eyes in it, rooting out the clover and upturning the blue-grass sod. The Polands graze more sensibly, letting the roots remain for future yield.

Another difference is this: they do not put up their bristles and dash off with a booh! booh! when the owner comes near, but run to meet him as gentle as pet sheep. A third difference consists in their being always fat and round, whilst the improved common stock are flat-sided, and never fat until their growth is attained.

The Poland is a large hog; a prolific breeder, and crosses well with most of our best breeds. The following crosses received premiums at the fair: Poland and Russia; Poland, Russia, and Chester White; Poland, Berkshire and Grazier; Poland and Grazier; but whether the stock has been improved by these crosses, is a question admitting reasonable doubts.

The pure Poland, Suffolk, Leicester and crosses of the Suffolk and Leicester also received premiums.

The hog is an animal susceptible of rapid improvement, or as speedily may be run out, by proper or improper breeding. Many farmers are continually crossing, and those who allow their stock to run at large, the sows taking such boars as they may chance with, generally soon find their stock run out.

Mr. Youatt, in his work on the pig, says: "Selection, with judicious and cautious admixture, is the true secret of forming and improving a breed." Says an old and well established axiom, and so it is—"Repeated and indiscriminate crosses are as injurious as an obstinate adherence to one particular breed, and as much to be avoided. And of this most persons seem to be fully aware; for a systematic alteration is extending itself throughout all our English breeds of swine."

The Berkshire, Essex, Suffolk, and Leicestershire, have all been formed by such crossing. The committee on swine have recommended a cross of this kind, Poland and Leicester, and their product with the Suffolk. They regard sudden changes as injurious—that extremes in size ought to be avoided.

Mr. Paddock, of Union, whose Poland sow carried off the sweepstake premium, (the second premium in the class), and the first premium at the Fayette County Fair, which was open to all competition, and who is one of the most successful hog breeders in our State, has given me this riddle to expound:

1. His premium sow is Poland, slightly crossed with Berkshire and Grazier. Sows of this blood he crossed with a full blooded Suffolk boar, which gave fair pigs, but light as to size and ham.

2. Sows of these pigs he crossed back to a boar of the Poland, Berkshire, and Grazier stock, which gave pigs worth nothing, being small, weak, and short.

3. Sows of Poland, Berkshire, and Grazier, he crossed with a boar of the pigs produced by the first cross with the full blooded Suffolk, and the result was pigs superior to the first, and better in size and ham.

The results here obtained are to be attributed to crossing extremes. The Poland is a large hog, squaring well, but the Suffolk is small, with fine bone, great tendency to fatten; but, like the wild hog and other English breeds, with heavy shoulders and light hams. Where crosses do not coalesce, then the defective points will predominate; hence the small size and light hams of the first cross. In the second instance these defective qualities predominated entirely, owing, probably, to a defective vitality, or exhausted procreative powers, or ill health of the boar. The third cross was better than the others, because the qualities were not so conflicting as in the first cross, and the boar was in a better condition than the boar in the second instance.

But there are other considerations that are almost wholly overlooked by the farmers. The selections for breeders are left to chance. Small young sows are allowed to stock the farm with starved pigs, got by some neighbor's boar, either a young pig or a fence-breaking old one, exhausted by his excessive indulgencies.

I raised three pigs by hand this winter, and was astonished to find that when but a week old, each one drank a quart of milk in the twenty-four hours. This would require from a sow having eight pigs two gallons of milk a day; a fact that shows how well our suckling sows should be fed. Many of them have not the milking qualities well developed, and in some it is only developed in some teats; and as each pig has its own teat, many are half starved.

No farmer should forget that if an animal is deprived or stinted of milk, at the age that it should have it, that no subsequent keep can make it a good animal. Hence, a sow kept for breeding should have every udder well developed, and the best of food to keep them well supplied with milk.

A boar should be at least one year old, and a sow nine months, before being put together. Both should be carefully selected, with reference to their points and healthy condition. Attention to these matters would soon put an end to that universal complaint—the running out of our breeds.

Connected with the hog crop is their product—BACON. It is true that the hogs are generally sold to packers; but there are strong reasons why the farmer should give more attention to bacon, if not to mess and other forms of barrel pork.

Last summer a relative, when on a visit to my house, complained that although canvassed hams were purchased by his family, yet they could not be eaten, because they were so much salted. At Pittsburgh, and other places in its neighborhood, the same objection existed; and it obtains, though not to so great a degree, against the sugar cured hams of Cincinnati. Here, when leaving our State Fair, in an early morning train, and hurrying from the breakfast table, my attentive hostess put up some boiled ham, with other things, for a luncheon. Whilst waiting at that most uncomfortable place, the Greencastle depot, on the New Albany road, with a sharpened appetite, at three o'clock in the afternoon, I partook of this boiled ham. Two pieces were as much as I could eat, hungry as I was. I threw the rest away; for a salted chip or shaving would have tasted as well.

Compare such ham with the three year old bacon ham of Bourbon county, Kentucky, upon the table of our present Governor, at the feast he gave us a year ago. Among all things so well selected and so admirably prepared, "then and there being," that boiled ham was the best, even better than the venison haunch and cranberries, which our Kankakee friends sent here last winter in so great abundance.

The mode of curing bacon at our pork houses must be changed, or else individual farmers must supply the markets with a better article.

Cured meats ought therefore to form an interesting part of our county and State exhibitions; and where so much is prepared, both for home and foreign consumption, as in this State, heavy premiums ought to be given for the best specimens, accompanied with detailed statements of the condition of the animal and the method of curing.

For the purpose of inducing our farmers to give greater attention to this matter, I have collected such recipes for curing meats, smoking, and preserving them from skippers, as I thought best.

RECIPES FOR CURING MEAT.

1. From the Germantown Telegraph.—"Those who will carefully adopt our method of curing pork and beef, will be enabled to enjoy as fine hams, tongues, dried beef, and rounds, as the Emperor of all the Russias can command—always providing that the meat cured is of the best quality. It is this:

"To one gallon of water, take one and a half pounds of salt; half a pound of sugar; half an ounce of saltpeter; half an ounce of potash. In this ratio the pickle to be increased to any quantity desired. Let these be boiled together, until all the dirt from the sugar, (which will not be a little), rises to the top and is skimmed off. Then throw it into a tub to cool, and, when cold, pour it over your beef or pork, to remain the usual time, say four or five weeks. The meat must be well covered with pickle, and should not be put down for at least two days after

killing, during which time it should be slightly sprinkled with powdered saltpeter."

2. From the Patent Office Report for 1852.—Mr. James Campbell, of Somerset county, New Jersey, says:

"The best method I have found for curing hams, is, after the hams have been cut, let them lie on a shelf where they can have plenty of cool air, so that the animal heat is entirely out of them before you attempt to put them down in salt; then corn them down for two or three days; after which drain off any bloody water which may come out; and then make the following pickle, sufficient to cover them:

"Take nine pounds of salt, three ounces of saltpeter, one ounce of saleratus, four pounds of brown sugar or molasses, and six gallons of water. Let them lie in the above pickle from three to six weeks, according to the size of the hams, when you may take them out and smoke with good hickory or apple-wood, until sufficient to suit your taste."

3. From a competitor to whom premiums were awarded at the Maryland State Fair, in 1854.

"For one thousand pounds of meat, which has hung for several days after killing, take three pecks of Liverpool salt—[I use a bushel of Lake salt instead. Rep.]—one and a half pounds of saltpeter, three pints of molasses, three pounds of brown sugar, and one quarter of a pound of Cayenne pepper. Mix these ingredients together, and rub the mixture on the meat well and thoroughly, both on the skin and flesh. Let it lie in salt five or six weeks; hang up and smoke with green hickory wood." [This I have tried and find good.—Rep.]

TO PRESERVE MEATS FROM SKIPPERS.

1. A writer in the Patent office report says: "After being smoked, hams should be taken down and hung in a *dry, cool* place, in *bags*, to protect them from flies."

2. Another writer says: "At the expiration of five weeks, after first packing provided the pork is not large, wash clean, hang up, and before the surface is quite dry, completely saturate the whole volume of air in the smoke house with quicklime. This may be done by violently stirring or throwing very fine dry lime in the smoke house. This will effectually prevent injury from skippers, bugs, &c. Smoke well with sound hickory wood. Let your bacon hang as long as you please."

3. Another says: "When thoroughly smoked and dried, prepare a strong decoction of black walnut hulls, or bark, and immerse each piece into it, to prevent damage by skippers or bugs. Pack in boxes with dry sawdust, and it will keep as long as you wish, if kept in a dry place, not too warm."

4. Take molasses and thicken it as much as possible with ground black or red pepper, and spread it over the cut side of the meat, as soon as you have it sufficiently smoked.

5. Place your hams or shoulders across sticks laid where the air can circulate around them, and where rats and mice cannot get to them, with the skin side down; then spread dry hickory ashes over the cut side, and they place another layer of the meat on these in the same way.

6. Put your meat in loose bags, and fill the spaces between the meat and bag with dry hay, cut fine. Tie the bag and hang up in a cool, airy situation.

As the raising of hogs will always be one of the principal divisions of farming, and the production of corn necessary to fatten them one of the most exhausting to our lands, it may not be improper to direct attention to the most economical modes of feeding and the best way of sustaining the soil.

It is a well established fact, that the saving of corn is about *one-third*, by feeding it ground and cooked. The rapidly extending use of mills for crushing corn will soon lead farmers who are feeding hogs to boil or steam it also. The corn thus saved will be one of the means of lessening the exhaustion of the soil. Another will consist in raising oats and rye, upon which the hogs may either be turned, or, if harvested, ground or chopped and fed with crushed and boiled corn.

Still, so long as labor continues high, the corn will generally be hogged down. And certainly there is no better mode of not merely sustaining a soil, but to increase its fertility than this. It is this practice which has sustained the unceasing cropping with corn of our rich alluvial soils on the White and Wabash rivers; and our clay uplands have been improved from year to year by this practice.

In my neighborhood, I have been shown a field which the owner assured me was entirely worn out, but by corning it every year and hogging it down, it has been made highly productive. Other farmers have asserted similar facts in their experience. If to this course was added a practice to sow in rye the early hogged fields, and then turn upon it also when ripe, no fears need be apprehended of an exhausted soil following the production of hogs. But where corn is gathered and fed to them in pens, along a stream, which carries away the manure, there can be but one result—an impoverished soil. For no soil can be upturned three, four, or five times during the summer, without changing large quantities of vegetable matter in the soil to gasses, which will partly be retained by a rye crop, and more than restored by the manure of the hogs, if allowed to eat the corn on the field, and the stalks and cobs which they will root in the ground.

Sheep.—The exhibition of this stock was not large, but good, as to the animals and the different breeds.

Of the fine wools, there were Saxons, French and Spanish Merinos and crosses between them. Some of these were of great fineness, and uniformity. The Saxons of Mr. Alexander Black, of Putnam, are of the best selections from the Washington county (Pa.) flocks, which Mr. Peters, of the Wool Grower, regards as amongst the finest and best in the Union. Mr. Taylor, of Henry county, exhibited the finest wooled Spanish sheep I have yet seen.

Of the middle wools, were the South Down; and of these the late importations of Mr. Meredith, of Wayne, were deservedly admired.

Of the long wools, were the Botswold and Leicester; both kinds being well represented by Mr. Beeler, of Marion, and by Messrs. Druly and Hammond, of Wayne.

Which of these breeds is the most profitable for our farmers? is a question that admits of various answers. The Saxons of Mr. Black, yields two and three-quarter pounds of well washed and tagged wool, which has been sold in Washington county (Pa.), the present year, at sixty cents per pound, but here, does not command as much. The value of the wool is too fluctuating to make definite calculations, and the legislation of Congress too uncertain to rely upon it. The opinion of Mr. Peters, recently expressed in the *Wool Grower*, is, that if Congress repeals the duty on wools, the finest sorts will become the most valuable, because foreign competition will be principally in the common Merinos.

The Saxon and Merinos are a small sheep, but the food of animals being in proportion to their live weight, a greater number can be kept on a certain amount of pasture than the large breeds. Their flesh is inferior to none others, as is contended for by many, and the combined value of wool and mutton, make them as profitable as other breeds, to those whose pastures and shelter are what they ought to be.

The South Downs are easier kept than any other breed, for the obvious reason, that producing but little wool, the food eaten goes to the formation of flesh and fat. But their mutton is superior as is asserted, and their appearance more beautiful than any other breed. Hence they are, deservedly, great favorites with many.

The Botswold and Leicester are well known for their heavy fleeces of wool, although coarse, and their large carcasses. Both these breeds are now sought for, because, at this time, mutton is a more marketable commodity than wool.

But let the wool and mutton markets fluctuate as they may, most of farmers will find profit in raising of sheep. They keep a farm clear of sprouts, a no small benefit to those living in oak lands, and of briars, usually so hard to keep out in the same lands. They eat much of what would otherwise be a waste, and they are better adapted to fall and winter grazing of meadows than heavier stock.

Sheep are more liable to disease than other stock, but their general health may always be preserved by frequent change of pastures, with occasional dry food, and by proper shelters in wet cold weather.

Mules and Jacks—This stock is not calculated to attract much attention at fairs, and hence, will constitute a small item, compared with the amount of money realized from it. So long as our trade continues with the South, the supply of cotton plantations with mules, will be an object to our farmers, and will prevent an over stock of horses. Hence its encouragement is of public utility. The mule is a hardy animal, and suffers less from the working of mares while suckling, than the horse colt. It can also be brought into market sooner, and therefore, suits the wants of many farmers, who cannot breed except from working mares, and whose convenience requires a sale of the colt at weening.

There is a good deal of controversy between some ancient Tennessee and Kentucky breeders, as to the proper size of the Jack. The former insist that the latter in their efforts to *breed* large mules, have sacrificed strength, endurance and action to size. Whatever the merits of this controversy, there are certain laws of breeding, which no one can disregard with impunity. Of these laws, one of the most important is, that the boney, muscular, nervous, and blood systems should be proportionate. It is worse than useless to develop a large long structure, with flat and feeble muscles to put it into motion, or a weak nervous system which can-

not impart life and energy to the muscular, or blood vessels too small to supply the wants of large muscles. *Size*, with corresponding developments of muscles, nerves and blood vessels, is desirable, but great size is usually attained at the expense of some or all the others.

8. *Grain Crops and Seed Specimens.*—For a State so productive as Indiana in the cereal crops, the exhibition of seeds and statements of crops raised, are meager in the extreme. This arises from the fact that the general average of particular crops is much the same in the several portions of the State, and that few farmers accurately measure the yield of their fields. But it is a matter of interest with all to know what each portion of the State is doing. The south part is regarded as corn-growing, and the north as wheat-growing. How much corn per acre is grown in the south, and what kinds do they raise, are questions of interest to the Lake farmer, for he wishes to institute a comparison with his own product of the north. So it is interesting to the resident on the Ohio to know what kinds of wheat and how much per acre are raised at Lake Michigan, that he may determine how much deep snows and rich sandy loams are essential to the production of wheat.

Unusual and extraordinary crops alone are stated. but more useful results could be obtained by a more detailed representation of crops as they generally are, accompanied with samples of seed sown, and the grains produced.

In addressing the Laporte Society this fall, I endeavored to show the cause of that universal complaint—the running out of wheats. I expected to find samples of their wheats, for that grain is their chief product, but there were none. Attributing this failure of wheats to *hybridism*, I wished to test the purity of the wheat of that region. At our State Fair, Professor Mapes drew attention to our vegetables, so greatly deteriorated by this cause, and an examination of our cereal grains will show a similar result. Hence the utility of having samples of grains—not merely a careful selection of a few kinds, but also as they are commonly produced. I advise, therefore, that the county societies be requested to furnish our State exhibitions with such samples.

Of the specimens shown there are two worthy of particular notice. *Poland Rye*, by Thomas E. Talbott, of Putnam, who from one and a-half bushels, sown on three acres, produced seventy-seven bushels. *Rock Wheat*, from Patent Office, sown in Dearborn county, produced forty-four bushels to the acre.

In connection with cereal crops, may properly be noticed the subject of manures. The Eastern agricultural papers discuss extensively the question of concentrated manures, such as guano, combinations of phosphates. ammonia, ground bones, &c. In the west we have always regarded the expense to be greater than the profit. A discussion was had at the last New York State Fair on the use of guano, at which Mr. Harris, of the *Country Gentleman*, said:

"He was greatly in favor of Peruvian guano, yet its value might be over estimated. In England, three hundred weight of good guano gives an increase in the wheat crop of ten bushels per acre. At present prices this would cost ten dollars, and it follows that if wheat sells for one dollar per bushel, little is gained by its use."

This statement clearly shows that even if wheat sold for $1 30, there would be no profit, because the harvesting, threshing, and taking to market, would have to be added to the cost of this extra ten bushels.

The only mineral manures that can be used in our State are lime and plaster. Of the first, nothing need here be said, and of the second, I refer the reader to the statement of Gen. Orr, in the transactions of the Laporte Society, reminding him that the Lake region is destitute of lime, and the rich vegetable matter in the soil has much acidity, as is shown by the heavy growth of sorrel. Upon such land plaster will be much more beneficial than on a lime soil—still on worn clay and lime soils, this application would be advantageous when sown on clover.

Our manures must be drawn from the barn yard, to which, in some localities, peat may be added, and in others, ashes with the rich deposits of sinks, ponds, &c. But hogging down, turning under green crops, and grassing are the means upon which all must rely, to enrich our ten to eighty acre fields.

Fruits—The fruits exhibited at the Fair were excellent. The specimens good and the varieties greater than usual. It is very obvious, both from the premiums given and the appearance of the fruits, that in apples, at least, the Lake districts are the best for growing them. The apple requires a moistened atmosphere, and a greater uniformity of temperature than is found in the southern and middle portions of the State. Lake Michigan lies in a great basin, the land around it in Indiana rising for the distance of ten or twelve miles, and until it obtains a height of three hundred feet above the level of the surface of the Lake. The evaporations of the Lake are confined in this space, making the air moist, and preserving it, together with the latitude from those hot drouths which cause the apple further south to be specked. To the same cause is the difference in colors—the Lake fruit is brighter than in other portions. From my own observation, I am satisfied that the apple tree bears large crops much earlier in the Lake basin, there in the middle and southern parts of the State.

But the fruits of Mr. Todd of Jefferson, of Mr. Stone of Randolph, of Mr. Ragan and Matson of Putnam, and of others, show that the whole State is well adapted to fruit growing, but the many failures demand some directions for the planting of fruit trees.

The best locality for the apple, especially in the middle and southern portions of the State, is on a northern slope of a hill. Such a situation shields the fruit from the direct rays of the summer sun, and keeps the ground from that winter thawing which allows the fruit buds to swell, causing either winter killing by freezing, or a too early blossoming. Peach trees especially do well on such situations, particularly where the woodland is left on the top of the hill to shade the ground in winter.

The trees set out should be selected with care. It is the common practice of nurserymen to crowd their trees, producing a spindling growth, and running the body high up, before branching. When such trees are set out, many are a long time before growing vigorously, and thereby are subject to having the bark injured by severe drouths. The drouth of last year destroyed thousands of such trees. I have lost at least a fourth of mine, and some which had been set out three years ago. Patches of bark adhered to the wood in various places, and, in some, worm holes are found, which fact has given rise to a belief that the injury was caused by the apple borer, and that that pest was among us. But the adherence is usually found on that part of the tree facing the two o'clock sun, and never on the parts towards a northern direction. Besides, the larger portion of these patches have no

worm holes, nor are they found on trees of vigorous growth. Such, at least, is my own experience.

Nurserymen have another bad practice—too much pruning of the side shoots. These ought to be taken off only when the shoot is becoming too large, but their object is to run the tree up in height, thus increasing the evil of too close planting. I would rather pay fifty cents for a tree properly grown than ten cents for them as they now are It would be in the end much cheaper.

But the *peach borer* is amongst us, and a destructive enemy he is likely to be. Unless guarded against, its ravages will be as fatal to the peach as the moth has been to the bee. The egg is deposited on the bark, at the surface of the ground; and it hatches from September to November. It eats the inner bark, destroying large roots, or stopping so much of the ascending sap as to weaken the growth of the tree, or altogether, by entirely girdling it.

To prevent it search around the tree during the fall, winter, and spring months, following its course with a knife until it is found. When full grown, the worm is three quarters of an inch long, white, with a brown head. Its presence can always be known by the gum on the surface of the ground.

To prevent the deposit of the egg, lay a small mound of ashes or lime around the tree during May, as the egg is deposited in June and the following two months. Hen manure is said to be an effectual preventive when placed around the roots.

I see no good reason why the cultivation of fruit might not be greatly extended, and rendered profitable by drying and feeding it to stock. The uncertainty of the peach will generally prevent its fruit, when dried, from becoming very low, and its value as food for stock is admitted to be great.

The value of the apple for stock is yet left a matter of guess; and it would be well if the Board would direct such experiments to be made as will fix their value, when fed raw, and when cooked with meal, roots, or other food. This might be done too by a premium.

Butter and Cheese.—When Henry Ward Beecher edited the Farmer and Gardener, at Indianapolis, he gave some vivid descriptions of the deplorable state of the butter market there. How much of the butter on exhibition was made by those who supply that market, I do not know, but Mr. Beecher's buttery cannot show a finer article than was exhibited. The amount shown was large, and it was uniformly good. It was dressed in all fasbions, from the plain roll and the round cake, to the pine-apple pyramid. A close scrutiny could not find different colors, and the keen scent of a veteran butter purchaser could not detect an unsavory odor. These qualities, and the clean wrappers, indicated a progress since the reverend editor thundered his anathemas against the unsightly and unsavory grease that twice a week came up to the markets of the capital.

But whilst rejoicing in this progress, it cannot be denied that our observations elsewhere show that there was much butter in the State not represented at the Fair. More especially in the winter season do we find butter legitimately descended from that so offensive to Mr. Beecher. Its white or mixed colors, and bitter taste, show how it has been made. Unclean vessels, heating before the fire, or with hot water poured into the cream when churning, and allowing buttermilk to remain in the churn, are errors still too prevalent.

In truth it is no easy matter to make good butter the year round. Hence the premiums the Board offer for good butter, and the statements it requires from exhibitors. I have examined most of those given, but the details are generally not minutely particularized—not enough so to be of much practical utility; and, therefore, I give what my home experience declares are essential requisites to the making of good butter.

After milking, the milk should be set in a cool place—either the spring-house or a cool cellar; and in the winter, in a place where the temperature does not vary much from these, at least not in a place where the milk will freeze. The vessels used, both for milking and in which it is set away, should be *scrupulously clean*—made so by frequent scaldings, and airing in the sun, in summer, or before the fire in winter. Tin basins we prefer to any other vessels, but they are liable to rust when set in water.

There is nothing that so quickly absorbs impurities of the atmosphere as cream, and few things more unpleasant than cream which has absorbed them. Hence the spring-house or cellar must be perfectly ventilated. Our experience shows that no good butter could be made in a spring-house built of stone, perfectly cleansed, through which flowed a spring of pure, cold water, in which the milk was set, and no vegetable or anything else, indeed, in the spring-house; where the door was left open during the day but closed during the night, *but which was ventilated by only a narrow opening in the wall.* There are no better spring-houses than our old fashioned log ones, because their ventilation is perfect.

The cream should stand until it has all raised, no matter whether the milk has soured or not, then skimmed off into the cream crock, which should be kept clean and aired as the milk pans, and the cream stirred once each day, until it has thickened, when it should be immediately churned. If it does not thicken soon, do not wait for it to do so, but churn it then.

But it is here that so much bad butter is made in winter. In order to hasten the thickening, the cream crock, or worse still, the churn, is set near the fire, heating one portion too hot. It is this which gives butter a bitter taste. Sometimes, when the churning has commenced, and the cream is found to be cold by its foaming, hot water is poured in, or the churn set close to the fire, both bad practices, for the butter is scalded before one is aware that it is done. Instead of this course, set the cream crock in a room where the fire is, or, in churning, if found too cold, set it near the fire, but not too near, and keep the dasher moving until the sound, a slight splashing, indicates the first going down of the foaming, when it is to be taken from near the fire and the churning moderately continued.

The churning should not be done *violently*, but carried on with a moderate and uniform motion; for rapidity will oftentimes heat the cream by its friction and scald it. As soon as the butter *begins* to gather, set the churn in a cold place, out doors, if in winter, or in the spring-house or cellar, if in summer, until cold; then continue the churning until the butter is gathered, when it will always be found hard, yellow, and sweet flavored. Work it in a wooden bowl, with a wooden paddle; no water to it; salt it with fine salt; work it again; set it way until next morning in a cool place, if the weather is warm; then work it over again, and, the buttermilk being all out, the butter is finished.

This is the way to make good butter; but *good* admits of comparisons—good, better, best. To make the better and best, the quality of the cows and of the food given to them must be regarded.

Of the grasses, the best undoubtedly is the blue grass; but a variety is also requisite. For winter pasture there is no better than a mixture of the English blue grass and the common. For winter feed, clover hay, corn fodder, with a warm mixture of meal bran and cut carrots, is the best. These, together with warm housing, and regular feeding and milking, will, with the mode of keeping milk and churning pointed out, make the "best" of butter.

But so long as purchasers of butter will give no more, or but little more, for the "good, better, best," than for "bad, worse, worst," they need not expect to be supplied with the former. Those who will not make the latter, let the calf take most of the milk, because they find it more profitable to do so.

At the exhibition of the January meeting of the Board, 1856, Mrs. Patterson, of Jeffersonville, showed some most excellent May butter, just as it was cut out of the jar—not worked over among new cream, as has very improperly, in some cases, been heretofore done. This butter was worked without the use of water, and in the manner above stated. After the second working, to every *ten* pounds of butter there was added three heaping table spoons full of finely pulverized, crushed sugar, and one heaping table spoon of finely pulverized saltpeter, well worked into the butter, which was then packed close with a wooden rammer, into a stone ware jar, holding about forty pounds. When full, a cloth, saturated with saltpeter, dissolved in water, was placed over the top, and about three inches of salt put on top. The butter was then set away in a cool place.

Of Cheese, my remarks shall be limited to what is called "home-made," in contradistinction to that manufactured at the regularly established cheese dairies. It is, I think, a matter of regret that the making of this is so much neglected upon our farms. It is a cheap and wholesome article of food, and ought to be used extensively, not only by farmers, but by all classes, the laboring men especially. The reason, perhaps, why it is not, is found in the poor article usually made. This is tough, and destitute of any agreeable taste, because it is made of *skim* milk. A portion of the cream may be taken off, if the milk is rich; but no good cheese can be made from poor milk. The mode by which the cheese can always be made good from good milk is as follows:

Put the milk in a jar or kettle, gradually heating it until it is "milk warm," or blood heat. Put in the rennet, stir well together, then let it stand until it has curdled. Cut the curd, strain the whey off through a bag, letting the curd remain *until it is cold.* If two or more milkings are necessary to make the cheese, proceed in the same way with the second; and when it is well drained and *cold*, work the two well together, with some salt added; then press and put it in a cool, airy place. A cheese thus made is fit to take a premium at the State Fair, and better than a great deal from the Western Reserve. But beware of skim milk and pressing when the curd is yet warm.

I repeat, that this method is for the "home-made," every day cheese. It will not keep long, but is well adapted for family make and use.

Vegetables.—Many of the vegetables were very fine, but others not good. Size, rather than quality, seemed to be generally aimed at. Hence, if cooked, many

would have been found to be woody, tasteless, or ill flavored. Professor Mapes pointed out some of these as being hybrids, especially the beets, which he said could not be sold in the New York markets. The seeds of most of our vegetables are not good; but the large number of seeds sold by druggists, and at agricultural warehouses, which do not germinate, forbids me to recommend our farmers to go to them for a pure article. The few good beets I saw this fall were raised by Mr. Jewell, of Michigan City, and exhibited at the Laporte Fair; but he was formerly a professional gardener, and hence knew the value of pure seed.

The potatoes exhibited were not of many varieties, and a premium, I think, should be offered for the best early potato; for the best table winter one; the one most productive for stock, and for that variety which is most exempt from the rot. The sweet potatoes of the Vestall's, of Cambridge City, were conspicuous for the display they made; for as they raise them by the cord, it was proper to exhibit them by the cord and not by the bushel. Their success shows how profitably the nature of each vegetable may be studied, that their cultivation may be in accordance with that nature.

Water-melons were exhibited, although late in the season; but the best kind was not among them—this is the "mountain sweet," not the "mountain sprout," a kind recently introduced through the Patent office, and everywhere acknowledged to be far superior to any other kind. I have tried the best kinds, and find this one much superior to any other.

I looked for the *cauliflower*, but could not find it. Why is this delicious vegetable not more frequently raised? It is true that it requires the aid af a hot bed, but this ought to be in every garden, to hasten the ripening of tomatoes and other vegetables now in general use.

The *Asparagus* is another vegetable scarcely to be found in our small towns, or in the country. And yet there is no vegetable better adapted to the general taste, or which comes at a better season of the year — the earliest spring, or which is more easily cultivated.

Again, *the Rhubarb* or pie plant, is too little cultivated. Even where it is, the common kind is still grown to a greater extent than the improved varieties. Yet it is one of the healthiest vegetables, and supplies the place of the apple in the spring.

The reason of the neglect of these and other garden vegetables is to be found in the universal habit of living too much on meat — a diet better adapted to cold than warm weather, and one that is most expensive. The substitution of vegetables ought to be encouraged, but this cannot be easily done — if the present high prices of meat and flour will not do it no premiums of the Board can.

And yet gardening is one of the most agreeable and useful occupations. "The laborer," says a writer, "who possesses and delights in the garden appended to his cottage, is generally among the most decent of his class; he is seldom a frequenter of the ale house; and there are few among them so senseless as not readily to engage in its cultivation when convinced of the comforts and gain derivable from it."

It includes not vegetables alone, but fruits and flowers. It was the pursuit of our first parents before the fall, and to this day is a favorite occupation with all. "There is no taste so perverse as that from it the garden can win no attention, or to which it can afford no pleasure." "It is the purest of human pleasures," says

Lord Verulam, and "it is the source of health, strength and plenty," said Socrates.

In pickles and preserves the exhibition was very good, showing that the preserving of fruits and vegetables is receiving more attention. The use of air-tight cans is the most favored mode, and certainly deserves the warmest encouragement by the Board. Experience will soon show the necessary requisites to successful keeping, among which I may mention is a place where the fruit will not freeze. We have lost most of our fruit from want of a cellar.

Agricultural Implements.—These embraced every kind usually found at State Fairs. But before making any remarks upon them, I wish to state what are my notions of the State Board of Agriculture.

The success and permanent location of its fairs, will make it an institution capable of effecting great good for the agricultural and mechanical interests of the State, if its awards are given to implements of the best kinds and which are of practical utility to the farmer and mechanic. But if the trial of these by purchasers show imperfections greatly impairing that utility, then the awards will be no recommendation, and when the novelty of fairs shall have passed away, they will cease to attract the attention they now do. It is an important matter, therefore, for the board to institute methods of testing the different machines which will certainly try their merits and expose their imperfections.

For example, in examining Ross' Burr Stone Portable Grist Mill, whilst in operation, I inquired of the exhibitor the *power* that was then driving the mill. He said it was a *two* horse power, and that the mill required no greater. Soon after I put the question to the exhibitor of another mill, and calculating the number of revolutions and the width of the band, he answered that it was an *eight* horse power. Which was right? Did the examining committee determine so important a matter as the *actual* power used by each machine? I think I may answer that they did not. One of our best farmers told me that at the Ohio State Fair at Cincinnati, he saw a horse power operated with six horses, and apparently with no great draft. He purchased one and found it required eight horses, and hard labor at that. This fact suggests that the machines tried should not be those exhibited, nor by the horses of the exhibitors, but such machines as are sold in the shop, and with horses that are good, but not uncommonly so. The machines exhibited are better made than those for sale in the ware houses, and of course the strongest and best horses would be selected to operate with.

Again, a single trial may show the rapidity with which a machine operates, but does not test the length of time it will last. In the crushers and grinders this is an important matter, and not a less one is the cost of replacing worn out grinders and crushers. How can these things be determined by the tests now used by the committees?

I inquired of the exhibitors of fat cattle whether they used crushers, and how they liked them. Mr. George Davidson, of Wayne, answers that he has not much of an opinion of them, for they require too much labor for the profit.

Mr. Levi Druley of the same county, says that he does not think crushers are very lasting. Both have used Leavitt's.

Mr. Williams of Knox, used the "Little Giant" one winter, during which he ground five thousand bushels, when the grinders were entirely worn out.

The rapidly extending use of crushers and grinders, demand that some other tests should be applied by the Board of Agriculture, than those heretofore given by the committee, and I recommend that a *special recommendation* be given to exhibitors of these, who will furnish from those they have for sale, a machine, to be placed by the board with a feeder of cattle, and used by him until it is worn out, a correct account being kept of the hours it has lasted, the force required to grind the number of bushels it ground, the cost of replacing the grinders, and the relative value of the mill when they are so replaced, compared with a new machine.

Portable mills, for the purpose of making meal or flour, ought to be accurately tested as to the *power* necessary to run them, and the bushels each will grind in a certain time.

To Ross' patent it was objected that it *heats* the flour and meal too much. Is this an objection or not? and if so, what degree of heat is injurious? and what is the nature of the injury? are questions that ought to be determined.

It is evident that these and other matters cannot be decided upon by the committees during the State Fair. Would it not be advisable, therefore, to appoint a committee to make the necessary experiments, in all such machines as should be subjected to special tests; the exhibitors being required to submit them to the committee, and implements proving meritorious, to be awarded a special recommendation. If the State Board is to effect all the good its organization gives it the power to accomplish, it seems to me that some such course should be adopted.

I have referred to Ross' mill, merely as an illustration of the character of my recommendations, but not to express any opinion of its merits or defects. In fact I would place very little reliance on my own or another's judgment of the utility of any machine from a mere examination of its component parts. Even plows can not be so judged, nor can their merits be tested by such use as is made of them by the committees. To test the turning quality, the plowing should be on hill sides, in long grass or stubble, or weeds, and not on a level, smooth piece of sod or loose ground.

In examining the machines, I endeavored to group together such as are adapted to the wants of particular sections of the State. I illustrate my idea by an instance. In the north, the chief product is wheat. There the large threshers and cleaners, such as the Richmond and Indianapolis machines exhibited, are the best, but in counties such as Monroe, it is found that a four-horse, and in several parts of it a two-horse machine is best adapted to the wants of the farmer. Since the State Fair, an owner of one of our eight-horse power threshers, told me that he had just returned from the eastern part of the county — thinly settled, where he had threshed with little profit to himself, and less to the farmers. In fact, many farmers dislike to have so many hands as are necessary to operate them. The value of machines is to be determined, not merely by the amount they can do in a day, and their cost, but their relative expense and convenience of separating also.

In New York, at Geneva, in 1852, a trial was had of various farming implements, and among these were the large and small threshers. The report thus alludes to two of them:

"For the purpose of comparing the cheapness of threshing by these two classes, (those which clean the wheat and those which do not) it may be assumed that 4500

sheaves, (or any other number), is the average quantity of work per day for Pitts' machine; and that 360 pounds of clean wheat is the yield from each 100 sheaves: these $\frac{360+45}{60}$ gives 270 bushels of clean wheat per day. The machine requires eight horses at fifty cents per day each, and seven men at one dollar each, making an aggregate cost of eleven dollars per day, or four cents and seven mills per bushel."

"The table shows that Emery's machine requires *twice* the time to perform the the same work that Pitts' machine will accomplish; therefore, Emery will thresh 135 bushels per day. To perform this work, Emery requires five men and two horses, the aggregate cost of which is, at rates before stated, $6 per day, or four cents and four mills per bushel."

This is a slight difference in favor of the eight-horse power, and Emery's machine also leaves the wheat in the chaff. But these advantages are counterbalanced by the less number of men and horses required to operate it, and in the convenience of neighborhoods that do not produce much wheat, or are thinly populated. Or where a neighborhood wishes to operate other machinery, as to shell corn, cut straw and hay, grind or crush cobs and corn, or to grind corn or wheat for family use, &c., in such cases, too, it will be better to use the two-horse power.

Any neighborhood of four to eight farmers, might at a small cost to each, purchase the two-horse power thresher and cleaner, with other machines they might wish, and by working together, have their grain threshed at such time as suits all, without that delay or worry so often attending the operation of the larger machines.

Of the mowers and reapers, it is almost needless to say anything, for the great saving effected by them and the rapidity of their operation, have been hailed with with the greatest enthusiasm in England and France, where labor is abundant and cheap, how much more joyfully should we greet them, who have no labor in our greatest need, even at high prices. Those machines which combine the mower and reaper, will always be the most popular, because best adapted to the wants of farmers. Of these, Mann's of Laporte county, obtained a premium.

In the absence of such tests as I have stated, I recommend the following, either for neighborhood or individual purchase, where adapted to local wants or individual enterprise:

Reaper and Mower Combined. Mann's of Westville, Laporte county. It is a self-raker, and obtained various premiums.

Two-horse Endless Chain Power Alone. Emery & Co. Advertised price, $116 00. *For the Power, Thresher, and Cleaner Combined,* $245 00. Or two-horse lever power, Hasselman & Vinton, Indianapolis, price $75.

Emery & Co. have *Corn Shellers and Feed Cutters* for their two-horse power. The Sheller, advertised to shell 200 bushels of ears per hour, price $45. The Cutter, cuts and crushes hay, straw, oats, cornstalks, &c., at the rate of one tun per hour, with one horse, price, $35.

Corn and Cob Crushers and Grist Mill Combined; Felton's, No. 2, advertised to grind from eight to fifteen bushels per hour. H. T. Lawton, Agent, Indianapolis.

These mills grind for family as well as crush for farm use. The grinders are said to be made of "cold blast white iron," the hardest kind of iron, and that "after

grinding over ten thousand bushels of grain, the grinders were not worn over 10 per cent.

The editor of the *Ohio Farmer*, who visited our State Fair, thus notices it:

"H. T. Lawton, of Indianapolis, exhibited 'Felton's Portable Mill,' what we think of it our readers already know, and we need only repeat what we said of it in the *Ohio Farmer*, of March 10, 1855:

"1. It is so light that two men can carry it to almost any place; and so simple in its construction, that any person of ordinary skill can run it and keep it in order.

"2. It is so cheap as to place it within reach of any farmer. It will grind wheat, corn, oats, buckwheat, drugs, spices, &c., and may be propelled by steam, water, wind, or horse-power, and is perfectly adapted to irregular motion.

"3. With two-horse power, it will grind per hour, from five to eight bushels of corn, and from eight to ten bushels of feed, and requires but little attention.

"4. It is not liable to break or wear out, and when the metal is worn out, it can be replaced at a trifling cost.

"5. The meal is not heated in the grinding, but it comes out from the hopper as cool as it goes in."

If, upon trial by the State Board, it will be found to have the merits claimed for it, it will be one of the most useful inventions even of this age.

Attached to this mill is a portable bolter, patented by ———, costing $30, which enables the farmer to make his own wheat and flour, and thus to be his own miller.

The mill No. 2, sells for $105, with a sifter for the meal; with the bolter, $130; with the lever horse power, all might be had for $200.

Another and new labor-saving machine exhibited was "Halliday's Self-Regulating Wind Engine."

The Wind Mill is an old machine, but went out of use because heavy storms destroyed them. This one, however, is self-regulating, so that no storms injure it. At our State Fair, the winds blew very gently, but it pumped water when the wind was blowing lightest. At the Illinois State Fair, held at Chicago last fall, it was put to a better test. The editor of the *Valley Farmer*, published at St. Louis thus speaks of it:

"Having seen it in operation at the Illinois State Fair at Chicago, we can speak of it in high terms. We also heard several scientific mechanics speak of it in terms of the highest praise. It was erected in an exposed situation on the grounds, and employed for pumping water for the use of the stock, which it did in a most satisfactory manner. It is completely under control, as is evidenced by the fact that one night during the fair when the exhibitors left it in full operation, a violent wind arose, which prostrated one of the large tents, and also completely destroyed a rival wind mill, this machine kept on the even tenor of its course, without increasing its speed in the least, and was found the next morning pumping away as if nothing had happened. It is of course equally adapted to heavy or light winds, and must, we think, come into general use on all farms and plantations, where considerable quantities of water are required to be elevated."

Another novelty was the Hay Elevator, of Keeny & Tarbox, of Florence, Switzerland county, of this State. It was an endless chain, fixed at an elevation of about

forty-five degrees, and being hitched to the hind part of the wagon to be loaded, which passed along and over the winrow, it took up the hay and deposited it upon the wagon. Forty acres can be pitched up by it in a day, and its cost is from $60 to $70.

Hill's Harrow, Roller, and Grain and Grass Seed Planter, is a machine combining the various operations of harrowing, sowing and rolling — all performed at the same time. Its proper working is guaranteed, and promises to become a useful invention to the farmer.

The *Carriages, Wagons, Carts and Sleighs*, were of very superior workmanship, displaying not only skill in the workmen, but correct taste in the ornament.

The same remark may be made of the almost endless variety of *Stoves*. These were of all kinds, and of all patterns, exhibiting a finish which speaks highly of our progress in castings.

The *Home-Made Manufactures* were of great variety, and most of them well made. But the impossibility of procuring the names of the owners of the greater part, forbids me to particularize any.

It was a subject of complaint that these were often brought into competition with articles manufactured by the aid of machinery, and that consequently some very meritorious articles of household make failed to receive the premium they deserved. If there was any foundation for this complaint, great care, hereafter, ought to be observed in distinguishing them, because it certainly is not the design to bring these kinds of manufactures into competition with each other.

Another complaint is, that persons procure an article to be made, and then enter it as if made by themselves. In all such cases the exhibitor should be required to state the maker's name, and the premium should be awarded to him, allowing the exhibitor and maker to make an agreement as to who shall have it. The object of a premium is, to encourage and make known the skill of the maker or manufacturer, and not the wealth of his customer.

Manufactures by Machinery. Our State is not a manufacturing one in woolen, cotton, and linen goods to much extent. Hence, in this class, it is not to be expected that a display can be made at our fairs. But the Cannelton Mills in cotton, and others in iron and wood, show that it is rapidly advancing, and in these the exhibition was satisfactory.

Our *Mechanics* were, more than usual, seen by their productions in every department assigned to them. The articles were of greater variety, and exhibited an improved skill and taste over the articles exhibited at the first State Fair — thus showing that their progress has been no less than their fellow laborers on the farm.

Of these, I particularize but one class of articles, because they were a novelty. These consisted of knives and forks, butcher knives and fine cutlery, shown by *Henry Hunter of Richmond*. They were superior to any of their kind in our hardware establishments, and he retailed them at the same rate that a similar article sells for at our retail stores. They were superior in the quality and temper of the metal, and Mr. Hunter ought to receive the patronage of retail merchants, and does now to such an extent, that he will soon have to enlarge his establishment, for at the time of the fair, his orders had overrun his ability to meet them.

The *Paintings and Drawings* added much to the interest of the fair; these,

with the flowers, showing that the general taste appreciates the beautiful as well as the useful.

But their effect was to some extent lost, by being scattered too much. The Daguerreotypes were with cedar buckets and horse shoes; and Canary birds warbled their notes to window blinds and bagging machines. These should have been in floral hall with the fruits and flowers, and paintings. The Daguerreotypes were the best I have ever seen, wanting but one thing to make the collection perfect — a few sons of toil in their laboring dress, as a contrast to the costume of those whose labor is not sufficient to earn the dress in which they were exhibited, but which enabled the artist to show how minutely he could Daguerreotype everything. Mr. Weeks, of Indianapolis, was, I believe, the artist. The paintings were chiefly by Mr. Cox of the same city, whose reputation is a sufficient guaranty of the excellence of his portraits and landscapes.

The *Flowers* were not fully represented, because they could not be in October. The most beautiful do not wait the frosts of winter, but our Fairs cannot be held in their natal month of May. Still the boquets showed a great variety of roses, and the dahlias and chrysanthemums have so multiplied by hybridism, that in the endless variety of their colors, we can extend the reign of Flora from the dasies and violets to the snows of winter. The hall of Flora was therefore thronged throughout the entire exhibition.

The permanent location of the fairs will enable the board to better regulate the places for each kind of articles exhibited. But for this purpose, it ought to select superintendents for each hall, who will consent to act for some years. Because it is by experience alone that a perfect arrangement can be attained. Almost any competent person would prefer serving three or more years, rather than for one only.

On several occasions, I have complained of the impossibility of learning the owners of animals and articles; the breeds and character of these, how raised, or how and where made or manufactured, and all those other matters interesting and useful for the visitors to know, and without knowing which, a reporter cannot specially refer to them.

All the exhibitors I spoke to condemned the practice of excluding their names from the labels attached to their animals or articles, as unjust to them, because they attended fairs less to compete for premiums, than to become known as breeders of stock, or manufacturers of the articles shown.

Of this practice, the editors of the *Ohio Cultivator* thus speak in their November number. Alluding to the Michigan State Fair, they say:

"Of the stock exhibited, we can say but little that would be of interest to the reader, for the reason that we could not learn the names of the owners of more than one in ten of the animals on the ground, owing to the continuance there of the practice formerly prevalent at our Ohio Fairs, of withholding the names from the cards, for fear the judges would otherwise show partiality; or rather for fear that the exhibitors would accuse them of partiality. But the loss to the public and to the exhibitors themselves, by withholding the names, is so obviously greater than any gain on that score, that we are surprised to find sensible people still advocating the practice."

This difficulty I met at every step, not only in ascertaining the names of owners,

but the breeds and crosses of breeds, ages, county, where and by whom bred, &c., of animals, and the particulars of every article grown or manufactured, which it would be a matter of interest to notice in my report. And it is all these things the visitors desire to know, and to be profitable to them, they ought to learn; and if the reporter could not learn them, how could they? Not, certainly, from the meagerness of the reports of committees.

I, therefore, recommend to the board, to prepare a series of questions to be answered and posted up by the exhibitors of stock, to the stall, or sewed, or otherwise strongly attached to the article exhibited.

I conclude my report by uniting with all in their exultation over the great progress made by our farmers, mechanics, and manufacturers, during the past four years, in their respective pursuits. That our annual exhibitions, and the organization of the State Board of Agriculture, and the county societies, have been leading causes of this progress no one doubts; a fact most gratifying to you and encouraging to the societies now formed, and strongly incentive to the formation of others.

LIST OF PREMIUMS

AWARDED AT

THE INDIANA STATE AGRICULTURAL FAIR,

OCTOBER 2, 1854.

CLASS A.—NO. 1.

SHORT HORNED THOROUGH BRED.

Best Bull, 3 years old or over, S. Meredith, Wayne county.	silver pitcher	$30 00
2d best, V. Lingenfelter, Hendricks county	silver cup	20 00
Best Bull, 2 years old or over, John Caldwell, Fayette county		20 00
2d best, Geo. Davidson, Wayne county	silver cup	10 00
Best Bull, James Caldwell, Rush county	silver cup	10 00
2d best, J. T. Williams, Boone county		5 00
Best Bull Calf, V. Lingenfelter		10 00
2d best, R. Baldridge	Youatt on Cattle.	
Best Cow, 3 years old or over, Geo. Davidson, Wayne county	silver cup	20 00
2d best, Sol. Meredith, Wayne county	silver cup	10 00
3d best, G. M Kinney, Washington county	recommended.	
Best Heifer, 2 years old, V. Lingenfelter, Hendricks county	silver cup	10 00
Best, Geo. Davidson, Wayne county		5 00
2d best, 1 year old or over, George Davidson, Wayne county	silver cup	10 00
Best Heifer Calf, George Davidson, Wayne county	silver cup	10 00
2d best, George Davidson, Wayne county		5 00

CLASS A.—NO. 2.

NATIVE AND GRADE.

Best Cow, over 2 years old, George Davidson, Wayne county	silver cup	$20 00
2d best, V. Lingenfelter, Hendricks county	silver cup	10 00
Best Calf, John H. Corbin, Rush county		5 00

CLASS A.—NO. 3.

WORKING CATTLE.

Best 3 yoke working Cattle, Calvin Fletcher, Jr., Marion county	silver cup	$20 00
Best 1 yoke working Cattle, G. W. Martin, Jefferson county	silver cup	10 00
2d best, Charles J. Crosby	Youatt on Cattle.	

CLASS A.—NO 4.

FAT CATTLE.

Best Steer of any breed, 3 years old or over, John Shawhawn, Rush county..silver cup $20 00
2d best.....silver cup 10 00
Best 2 year old or over, George Davidson, Wayne county.....silver cup 10 00
Best 1 year old or over, George Davidson, Wayne county.....silver cup 10 00
Best fat Cow, 4 years old or over, George Davidson.....silver cup 10 00

CLASS A.—NO. 5.

Milch cows, no award, exhibitors not furnishing statement of age, etc.

CLASS A.—NO. 6.

CATTLE FROM OTHER STATES.

Best Bull, 3 years old of any breed, D. H. Smith, Kentucky.....Diploma.

CLASS A.—NO. 7.

SWEEPSTAKES.

Best Bull of any age, V. Lingenfelter, Hendricks county.....silver cup $20 00
Best Cow of any age, Sol. Meredith, Wayne county .....silver cup 20 00

CLASS B.—NO. 1.

HORSES FOR GENERAL PURPOSES.

Best Stallion over 4 years old, Jonathan Lewis, Tippecanoe county.....silver pitcher $30 00
2d best, J. L. Platt, Hamilton county.....silver cup 20 00
Best brood mare over 4 years old, Robert Watt, Wayne county.....silver cup 20 00
2d best, James Gibson, Bartholomew county.....silver cup 10 00
Best stallion colt over 3 years old, W. H. Smith, Hendricks county..... 10 00
2d best, W C. Logan, Jefferson county..... 5 00
Best filly 5 years old or over, Franklin Landis, Morgan county.....silver cup 10 00
2d best, Hiram Francisco, Jefferson county..... 5 00
Best stallion colt over 2 years old, Henry Wolf, Jefferson county.....silver cup 10 00
2d best, George Fringeley, Jefferson county..... 5 00
Best stallion colt 1 year old or over, J. W. Blackford, Rush county.....silver cup 10 00
2d best, James M. Horner, Jefferson county..... 5 00
Best sucking stallion colt, Robert Foster, Decatur county.....silver cup 10 00
2d best, Martin M. Dolly, Jefferson county..... 5 00
Best filly 2 years old, Henry Lanner, Decatur county.....silver cup 10 00
2d best, Henry Lanner..... 5 00
Best sucking colt, Samuel Overturf, Ripley county.....silver cup 10 00

CLASS B.—NO. 2.

HORSES FOR LIGHT HARNESS.

Best stallion 3 years old or over, M. R. Hull, Fayette county.....silver cup $20 00
2d best, John Harlen, Hendricks county.....silver cup 10 00
3d best, L. J. Hackney, Johnson county..... 5 00
Best mare 3 years old or over, Samuel Stroder, Jefferson county.....silver cup 10 00
2d best, A. Arnold, Jefferson county 5 00

CLASS B.—NO. 3.

HORSES FOR SADDLE.

Best gelding 3 years old or over, Wm. Haines, Wayne county.....silver cup $10 00
2d best, Robert Watt, Wayne county..... 5 00
Best mare 3 years old or over, Martin H. Daily, Jefferson county.....silver cup 10 00
2d best, Samuel Overturf, Ripley county..... 5 00

CLASS B.—NO. 5.

PACING STALLIONS.

Best 4 years old or over, William Lewis, Fayette county.....silver cup $20 00
2d best, Isaac Young, Jefferson county.....silver cup 10 00

CLASS B.—NO. 6.

TROTTING AND PACING HORSES.

Best stallion 3 years old, James M. Stone.....silver cup $10 00
2d best, James Wilson..... 5 00
Best trotting mare or gelding, Charles Frost, Fayette county.....silver cup 10 00
Best pacing mare or gelding, John Q. Willman, Jefferson county.....silver cup 20 00

CLASS B.—NO. 7.

FARM AND DRAFT HORSES.

Best stallion 3 years old or over, Charles Frost, Fayette county.....silver cup $20 00
2d best, Thos. Glase, Ripley county.....silver cup 10 00
Best gelding 3 years old or over, Wm. McCaw, Indianapolis.....silver cup 10 00
2d best, J. L. Platt, Hamilton county..... 5 00
Best gelding 2 years old or over, John T. Wright..... 5 00
Best mare 3 years old or over, Franklin Landes, Morgan county.....silver cup 10 00

CLASS B.—NO. 8.

MATCHED HORSES.

Best, R. Dailey, Jefferson county.....silver cup $20 00
2d best, A. Armel, Jefferson county.....silver cup 10 00

CLASS C.—NO. 1.

JACKS AND MULES.

Best Jack of any age, Robert Foster, Dearborn county.....silver pitcher $30 00
Best span of mules, F. F. Hamilton, Decatur county.....silver cup 10 00
2d best, T. B Anthony, Bartholomew county..... 5 00
Best single mule over 2 years, A. Holbrook, Warrick county.....
2d best, J. C. Kelso. Washington county.....

CLASS D.—NO. 1.

LONG WOOLED SHEEP.

Best Buck over 2 years old, George Davidson, Wayne county.....silver cup $10 00
2d best, George Millican, Jefferson county..... 5 00
Best buck 1 year old, George Millican, Jefferson county.....silver cup 10 00
2d best, George Millican, Jefferson county..... 5 00
Best buck lamb, George Millican, Jefferson county..... 5 00
2d best, George Millican, Jefferson county..... 3 00
Best pen 5 ewes under 2 years, George Millican, Jefferson county.....silver cup 10 00
Best pen 5 ewes over 2 years, George Millican, Jefferson county.....silver cup 10 00
Best ewe over 2 years old, George Davidson, Wayne county.....
Best pen 5 ewe lambs, George Millican, Jefferson county..... 5 00

CLASS D.—NO. 2.

MIDDLE WOOLED SHEEP.

Best buck over 2 years, George Davidson, Wayne county.....silver cup $10 00
2d best, George Millican, Jefferson county..... 5 00
Best buck under 2 years, George Millican, Jefferson county.....silver cup 10 00
Best ewe over 2 years, George Davidson, Wayne county.....

CLASS D.—NO. 3.

FINE WOOLED SHEEP.

Best buck over 2 years old, Alex Black, Putnam county.....silver cup $20 00
2d best, Alex. Black, Putnam county.....silver cup 10 00
Best buck under 2 years old, Alexander Black, Putnam county.....silver cup 20 00
2d best, Samuel Neil, Jennings county.....silver cup 10 00
Best buck lamb, Alex. Black, Putnam county.....silver cup 10 00
Best ewe lamb, Alex. Black, Putnam county.....
Best 5 ewes over 2 years, Alexander Black, Putnam county.....silver cup 10 00
2d best. Sol. Meredith, Wayne county..... 5 00
Best 5 ewes under 2 years, Alex. Black, Putnam county.....silver cup 10 00
2d best, Samuel Neil, Jennings county..... 5 00

CLASS D.—NO. 4.

FAT SHEEP.

Best, John H. Corbin, Rush county.....silver cup $10 00

CLASS D.—NO. 5.

SHEEP FROM OTHER STATES.

Best long wooled buck, S. G. Pattison, Michigan.....diploma.
Best middle wooled buck, S. G. Pattison, Michigan.....diploma.
Best fine wooled buck, S. G. Pattison, Michigan.....
Best 5 middle wooled ewes, S. G. Pattison, Michigan.....diploma.
Best 5 fine wooled ewes, S. G. Pattison, Michigan.....diploma.

CLASS E.—NO. 1.

HOGS.

Best boar 2 years old or over, George Davidson, Wayne county.....silver pitcher $30 00
2d best, Thomas Hayes, Bartholomew county.....silver cup 10 00
Best boar 1 year old or over, Wm. C. Cravens, Jefferson county.....silver cup 10 00
2d best, Thomas Hayes, Bartholomew county..... 5 00
Best boar under 1 year, George Davidson, Wayne county.....silver cup 10 00
2d best, J. T. Williamson, Boone county..... 5 00
S. D. Baker, Marion county.....diploma.
Best breeding sow 2 years old or over, T. Hayes, Bartholomew county.....silver cup 20 00
2d best, S. D. Baker, Marion county.....silver cup 10 00
Best breeding sow 1 year old, S. D. Baker, Marion county.....silver cup 10 00
Best sow under 1 year old, J. T. Williamson, Boone county.....silver cup 10 00
2d best, George Davidson, Wayne county..... 5 00
Best pair shoats under 10 months, S. D. Baker, Marion county.....silver cup 10 00
Best 5 pigs under six months, S. D. Baker, Marion county.....silver cup 10 00

CLASS F.—NO. 1.

POULTRY.

Best pair Shanghais, James Woods, Hancock county..... $3 00
Best pair Cochin China, James Woods, Hancock county..... 3 00
2d best, H. C. Meredith, Wayne county.....
Best pair Gray Chittagongs, J. T. Williamson, Boone county..... 3 00
Best pair Polands, Henry Little, Madison..... 3 00
Best pair Silver Pheasants, James Woods, Hancock county.....diploma.
Best pair Seabright Bantams, Wm Kirk, Madison.....diploma.
Best pair of African Bantams, Wm. S. Lunt, Shelby county, Ohio.....diploma.
Best collection fowls, Miss E. J. Todd, Madison.....set tea spoons

CLASS G.—NO. 2.

TURKIES, GEESE AND DUCKS.

Best white Poland Ducks, B M. Lanham, Jefferson county..... $3 00
Best Muscovy Ducks, George Millican, Jefferson county..... 3 00
2d best A. Williams, Jefferson county.....
Best pair Indian Geese, B. F. Lanham, Jefferson county.....recommended.
Best pair China Geese, T. Woods, Madison.....recommended.
Great variety, J. Todd, Madison.....set tea spoons.

CLASS H.—NO. 1.

PLOWS AND PLOWING MATCH.

Best plow for general purposes, first premium S. Horney & Co., Richmond..silver cup $20 00
Best plow for clay soil, first premium, Richardson & Co., Madison.....silver cup 10 00
Best plow for light sandy soil, first prem , Beard, Sinex & Dunn, Richmond..silver cup 10 00
Best plow for black muck or clay soil, first premium, Richardson & Co., Madison.....silver cup.
Best plow for sward, first premium, S. Horney & Co., Richmond.....silver cup 10 00
Best subsoil plow, first premium, Richardson & Co., Madison.....silver cup 10 00
Best side-hill plow, first premium, Richardson & Co., Madison.....silver cup 10 00
Best 2 horse plow, first premium, Beard, Sinex & Dunn, Richmond.....diploma.
Best one horse plow, first premium, Beard, Sinex & Dunn, Richmond.....diploma.
Best shovel plow, first premium, Beard, Sinex & Dunn, Richmond, Indiana.....

CLASS I.—NO. 1.

ARCHITECTURAL DESIGNS.

Best design and specifications for a fowl house, to Oliver Albertson, Washington county.....silver cup $10 00

CLASS J.—NO. 1.

FARMING IMPLEMENTS.

Best six hay forks, Beard, Sinex & Dunn, Wayne county.....diploma.
Best 6 straw forks, Beard, Sinex & Dunn, Wayne county.....diploma.
Best 6 manure forks, Beard, Sinex & Dunn, Wayne county.....diploma
Best 6 grain scythes, Beard, Sinex & Dunn, Wayne county.....diploma.
Best 6 hoes, Beard, Sinex & Dunn, Wayne county.....diploma.
Best 6 scythe snaths, Beard, Sinex & Dunn, Wayne county.....diploma.
Best display farming tools, Beard, Sinex & Dunn, Wayne county.....silver cup $10 00
Best farm wagon. Shaffer & Anderson, Switzerland county.....diploma and silver cup 20 00
Best harrow, Richardson & Co , Madison.....diploma and silver cup 10 00
Best horse rake, J. K. Harris, Switzerland county.....diploma and silver cup 10 00
Best corn planter, J. H. Wiggins, Franklin county.....diploma and silver cup 10 00
Best ox-yoke, Richardson & Co.....diploma and 3 00
Best cultivator, Richardson & Co.....silver cup 10 00
Best cider mill, F. B. Hunt, Richmond.....silver cup 10 00
Best cider mill, corn sheller, cheese press, wool packer combined, D. Kellogg, Michigan.....recommended.
Best hay press, L. W. Beal, Switzerland county.....recommended.
Best fanning mill, W H. Bowisby, Clinton county.....silver cup 10 00
Best flax and hemp packers, Wilson & Aberdeen, Madison.....recommended.
Best corn sheller, Beard, Sinex & Dunn, Wayne county.....diploma.
Best winnowing machine, J. Ward, Johnson county.....recommended.
Best straw cutter, Beard, Sinex and Dunn.....silver cup 10 00
Best corn and cob crusher, Scott & Hodges, Hamilton co., O....diploma and silver cup 10 00
Best horse power for general purposes, Hasselman & Vinton, Indianapolis..... 10 00
Best horse power and separator combined, F. W. Robinson, Wayne co.....silver cup 20 00

CLASS K.—NO. 1.

LEATHER AND LEATHER MANUFACTURES.

Best carriage harness, first premium, T. Pogue, Madison .....silver cup $10 00
Second best, A. F. Woodcock, Rush county 5 00
Best single carriage harness, first premium, T Pogue, Madison .....diploma and 5 00
Second best, John C. Cheney Decatur county 3 00
Best ladies' saddle, first premium, John C. Cheney, Decatur county.....diploma and 5 00
Best pair fine boots, first premium, Pollock & Matthews, Madison.....diploma and 3 00
Best pair coarse boots, first premium, Pollock & Matthews, Madison.....diploma and 2 00
Best pair ladies' gaiters, first premium, Pollock & Matthews, Madison.....diploma and 2 00
Best specimen sole leather, first premium, Isom Ross, Madison.....diploma and 3 00
Best specimen kip leather, first premium, Joseph Kestner, Madison.....diploma and 3 00
Best specimen calf skin, first premium, John Kestner, Madison.....diploma and 3 00
Best specimen Morocco, first premium, John Kestner, Madison..... .....diploma and 3 00
Best saddle trees, first premium, Martin Kimball, Madison.....diploma.

CLASS L.—NO. 1.

CARRIAGES AND CABINET FURNITURE.

Best family carriage, A. F. Woodcock, Rush county.....silver cup $20 00
Second best, William H. Fry, Madison .....silver cup 10 00
Best set cane seat chairs, E. Lewis, Madison.....
Best arm chairs, James Knight, Jefferson county.....
Second best, J. P. Siddall, Jefferson county .....
Best ladies' work box, Mrs. S. H. Patterson, Clark county.....
Best gilt or carved frame, Miss M. Woods, Madison 3 00
Best fancy boxes, J. H. Wiggins, Franklin county .....diploma.
Best wagon and carriage hubs, Rugsby & Osgood.....recommended.

CLASS M.—NO. 1.

AGRICULTURAL PRODUCTS.

Ten acres of corn, D. G. Robb, not yet examined.....

CLASS M.—NO. 2.

Best sample wheat, Harrison Dawson .....Farm and Shop.
Best sample broom corn, John Land, Jefferson county.....recommended.
Best timothy seed, Thurston Wood, Jefferson county.....Indiana Farmer and $2 00
Best blue grass, James Woods, Hancock county.....Indiana Farmer and 2 00
Best bale hay, L. W. Deal, Switzerland county.....

CLASS M.—NO. 3.

VEGETABLES.

Best long blood beets, Richard H. Chambers, Franklin county.....Indiana Farmer and $2 00
Best turnip blood beets, Wm. Smith, Jefferson county.....Farm and Shop and 2 00
Best carrots, Wm. Thomas, Jefferson county .....Indiana Farmer and 2 00
Best parsnips, Wm. Thomas, Jefferson county.....Farm and Shop and 2 00
Best cabbage, Wm. Smith, Jefferson county.....Farm and Shop and 2 00
Best egg plants, W. Thomas, Jefferson county.....Indiana Farmer and 2 00
Best red onions, Thomas Hays, Bartholomew county.....Indiana Farmer and 2 00
Best yellow onions, Charles Almond, Jefferson county.....Indiana Farmer and 2 00
Best potatoes, David B. Woodward, Jefferson county.....Farm and Shop and 2 00
Best sweet potatoes, A. H. Vestal, Wayne county.....Plow Boy and 2 00
Best squashes, James Woods, Hancock county.....Indiana Farmer and 2 00

MINNESOTA PRODUCTS.

Wheat of different varieties, oats, beets, sweet potatoes, &c.....recommended.

CLASS N.—NO. 1.

FRUITS.

Best and greatest variety of table apples, Henry Myers, St. Joseph.....silver cup
Second best, Charles Almond, Jefferson county .....Horticultural Review and 5 00
Third best, John W. Wright, Switzerland county.....Horticultural Review and 3 00
Best 12 varieties of table apples, Henry Myers, St. Joseph....Horticultural Review and 5 00
Best and greatest number of varieties of pears, Mrs. A. W. Pitcher, Madison.....Horticultural Review and diploma.
Second best and greatest collection of winter pears, Miss E. J Todd, Madison.....Indiana Farmer and ——
Best and greatest collection of autumn pears, Miss E. J. Todd, Madison. .....Western Horticultural Review.
Best ten varieties of peaches, John W. Wright, Switzerland co.....Hort'l Review and $5 00
Second best, E. Freeman, Jefferson county.....Farm and Shop and 3 00
Best quinces, W. J Elvin, Jefferson county.....Horticultural Review and 3 00
Second best, Thomas Hays, Bartholomew county.....Horticultural Review and 3 00
Third best, John W. Wright, Switzerland county.....Farm and Shop.
Best specimens of grapes grown in open air, Mrs. R. J. Wharton, Madison .....Horticultural Review and $3 00
Second best, B. F. Page, Madison.....Indiana Farmer and 2 00
Third best, Mrs. Ellen Shrewsbury.....recommended.
Best dish native grapes, E. J. Todd .....Horticultural Review

CLASS O.—NO 1.

FLOWERS.

Best variety of cut flowers, Mrs Temperly, Madison .....diploma.
Best and greatest variety of dahlias, B. N. Lanham, Jefferson county.....set tea spoons.
Best and greatest variety of roses, Mrs. John H. Taylor, Madison...Hort'l Review and $5 00
Second best, Mrs. A. W. Pitcher, Madison.....Farm and Shop and 3 00
Best basket of flowers, Mrs. A. W. Pitcher, Madison.....Horticultural Review and 3 00
Best and greatest variety of verbenas, Mrs. Temperly, Madison.....diploma.
Best carnations, Mrs. Temperly, Madison.....diploma.
Agricultural basket, Miss H. A. Brandt.....recommended.

CLASS O.—NO. 2.

Best collection of green-house plants, Mrs. Temperly, Madison.....set tea spoons.
Best cornucopia of fruits and flowers, Miss E. J. Todd, Madison.....recommended.
Best flat hand boquet, Mrs. A. W. Pitcher, Jefferson county.....diploma and $3 00
Best round hand boquet, Miss E. J. Todd, Madison.....diploma and 3 00
Second best, B. N. Lanham, Jefferson county .....Farm and Shop.
Best floral design, Mrs. Temperly, Madison.....set tea spoons.
Best king cactus, J. M. Sadd, Jefferson county.....recommended.

CLASS P.—NO. 1.

EDGE TOOLS, &C.

Best knives and forks, Martin and Hunter, Wayne county .....diploma and $3 00
Best butcher knives, Martin & Hunter .....diploma and 2 00
Best coopers' tools, J. B. Lape, Madison.....diploma and 5 00
Best carpenters' tools, J. B. Lape, Madison.....diploma and 5 00
Best Hussey's Perfect Adjuster, T. P. Bodley, Hamilton county, O.....recommended.
Best cutlery, not before specified, B. Wells.....diploma.

CLASS P.—NO. 3.

ENGINES AND MACHINERY.

Best steam engine, Crawford, Davidson & Westcott, Madison.....silver cup $20 00
Best steam boiler, Washington McLean & Co., Madison.....silver cup 10 00

Best fire engine, Fair Play Company, Madison..... silver cup 10 00
Best hominy and samp machine, James Hughes, Wayne county.....recommended.
Best hose reel, Washington Fire Company, No. 3.....silver cup $10 00
Best brick making machine, B. C. Taylor, Lewisburg, Penn.....silver cup $10 00
Best flouring mill, Charles B. Swaine, Jefferson county.....recommended.

CLASS R.—NO. 1.

COOPERAGE AND WOODEN WARE.

Best flour barrel, Defrees, Daily & Co., Marion county .....diploma and $2 00
Best pork barrel, Wyman & Gibson, Aurora.....diploma and 2 00
Best lard barrel, W. E Gibson, Aurora.....recommended.
Best panel door, Hendricks & Pugh, Madison.....diploma and $2 00
Best window sash, Hendricks & Pugh, Madison.....diploma and 2 00
Best window blind, Hendricks & Pugh, Madison.....diploma and 5 00
Best churn, I. L. Dickinson, Richmond.....silver cup 10 00
Best bee hive, Chester D. Gould.....diploma and 3 00
Best specimens of turning, R. C. Meldrum.....recommended.
Best corn brooms, H. C. Connett.....diploma and $2 00
Best brushes, H. C. Connett.....recommended.

CLASS R.—NO. 2.

PAINTINGS AND DRAWINGS.

Best specimen portrait painting, S. Alberger.....recommended.
Best flower painting in oil, Miss E. B. Whitney, Jefferson county.....
Best landscape painting in oil, Mrs. Wm. Dunn, Marion county.....
Best landscape painting in water colors, Miss E. Brandt, Jefferson county .....
Best animal painting, R. E Lee, Madison.....
Best architectural drawings, D. Dubach .....
Best specimen penmanship, T. J. Bryant.....
Best sign painting, F. L. Dubach, Jefferson county.....
Best graining, Wm. Peddie, Madison.....recommended.
Monochromatic painting, Wm. M. Gorgoes, Madison.....

CLASS S.—NO. 1.

BUTTER AND CHEESE.

Best 10 lbs. of butter, made in June, James Woods, Hancock county.....set tea spoons.
Best 15 lbs. of butter, made at any time, Mrs. John P. Ramsey, Jefferson co....set tea spoons.
Second best 15 lbs. of butter James Woods, Hancock county..... ... $3 00
Best cheese, D. G. Rose, Laporte.....set tea spoons.
Best ten pounds honey, R. W. Todd, Madison.....set tea spoons.
Second best ten pounds honey, Chester S. Gould, Jefferson county..... $3 00

MISCELLANEOUS ARTICLES.

Case dry goods, Wilborn Coles.....diploma.
Cheap and easy buggy, J. S. McLelland, Lafayette.....
Perfumery, Simon Alberger, Madison .....diploma.
Cases hardware, Wells & Alling, Madison.....diploma.
Model of saw mill, Michael W. Helton.....diploma.
Best dentistry, H. B. Slayton, Madison $5 00
Second best, Purcell & Mason, Jefferson county..... 3 00
Medicines, S. Alberger, Madison.....diploma.
Case of hats, Hill & Cunningham .....diploma.
Brick, J. R. Coffman..... $3 00
Carpeting, Irby Smith, Madison.....diploma.
Tomb stones, James Falconer, Madison.....diploma.
Marble phonetic alphabet, James Falconer.....diploma.
Case of millinery, Mrs. S. E. Reese, Madison.....diploma.
Silk dress from raw silk, Elizabeth Zeanor $5 00

Artificial wreath, Miss Elizabeth Stebbins.....
Wax candles, Chester S. Gould, Jefferson county.....diploma.
Daguerreotypes, B. F. Dewey, Jefferson county.....diploma.
Second best, J. R. Gorgas, Jefferson county.....diploma.
Pencils for card writing, T. J. Bryant.....diploma.
Collection of insects of the west, Mrs. R. J. Wharton..... $3 00
Writing fluid, J. J. Butler.....diploma.
Second best, Crawfordsville Journal.....diploma.
Steamboat yawl, S. T. Golay, Vevay.....diploma.
Silver ware, S. P. Bailey & Co..... $10 00
Second best, E. J. Baldwin.....diploma.
Alcohol, Higbie, Barbing & Co., Madison.....diploma.
Hair wreath, S. C. Finical, Vernon.....diploma.
Roofing tile, J. L. Freeman.....diploma.
Portable grist mill, L. B. Woodward..... $5 00
Fire proof roof models, J. P. Siddall, Jefferson county.....diploma.
Starch, John Manwaring, Madison.....diploma.
Fly brushes, John Smock.....diploma.
Apparatus for opening and shutting gates..... $5 00
Tippets, Miss A. Williams, Muncie.....diploma.
Stencil cutting, T. L. Dubach.....diploma.
Tobacco, N. Hunt & Co., Madison..... $5 00
Second best, M. & E. Shannon..... 3 00
Model dwelling house, Mrs. Irby Smith..... 5 00
Printing ink, H. S. Pratt.....diploma.
Separator and horse-power, F. W. Robinson, Wayne county.....for workmanship, $10 00
Armadillo shell, David A. Todd.....diploma.
Model saw mill.....diploma.
Blackberry cordial..... $3 00
Shell monument..... 3 00
Carving in wood, A. Gorman.....recommended, $3 00 and diploma.

WINTER EXHIBITION.

At the session of the State Board of Agriculture, in January, 1855, the following premiums were awarded on articles which were presented for the examination of the Board:

MANUFACTURED ARTICLES.

Mrs. S. Buckles, of Delaware county, for muff..... set tea spoons.
Miss Buckles, of Delaware county, for tippet.....sugar spoon.
Miss Alice Williams, of Delaware county, for two tippets.....set tea spoons.
J. W. Matlock, of Hendricks, for two blankets.....silver cup $10 00
J. W. Matlock, for sample of woolen yarn..... 2 00
Miss Lizzie Buckles, of Delaware, for card basket.....sugar spoon 2 00

GRAINS.

Richard Dufton, of —— county, for best sample of white wheat.....silver cup $10 00
E. J. Howland of Marion county, for best sample of white oats..... 5 00
George Davidson, of Wayne county for best sample of barley oats..... 5 00
George Davidson, for best sample of black oats..... 3 00
E. J. Howland, of Marion, for best sample of flax seed..... 5 00
E. J. Howland, for second best sample of white wheat..... 5 00
George Davidson, of Wayne, for best sample of yellow corn.....silver cup 20 00
E. J. Howland, of Marion, for second best sample of yellow corn.....set tea spoons.

Fielding Beeler, of Marion, for best sample of white corn.....silver cup $10 00
John W. Wright, of Switzerland county, second premium on white corn 5 00

DAIRY.

Miss Alice Williams, of Delaware county, for best sample of butter.....silver cup $10 00

WOOL.

Alexander Black, of Putnam county, for best sample of fine wool.....silver cup $20 00
J. M. Maxwell, of —— county, for sample of fine wool.....silver cup 10 00
Miss McCoy, of —— county, for woolen shawl..... 2 00

FRUITS.

Burbank & Brothers, of Starke county, for samples of cranberries, in jars..silver cup $10 00
Henry Myers, of St. Joseph county, first premium on apples, 26 varieties....silver cup 20 00
Fielding Beeler, of Marion county, 2d premium on apples, 22 varieties.....silver cup 10 00
Thomas Durham, of Vigo county, third premium on apples, 13 varieties.....set tea spoons.
Wm. B. Thompson, of —— county, for 8 varieties of apples..... $3 00
—— Cory, of —— county, for 9 varieties of apples..... 4 00
T. J. Edmondson, of Bartholomew county, for model of corn planter.....diploma

JOS. ORR,
G. W. LENNARD,
FRANCIS WORLEY,
WM. B. THOMPSON,
GEO. DAVIDSON,
GEO. CRAWFORD.
} *Committee.*

LIST OF PREMIUMS

AWARDED AT

THE INDIANA STATE AGRICULTURAL FAIR,

OCTOBER, 1855.

SPECIAL STATE PREMIUMS.

ESSAYS.

On cultivation of wheat, J. R. Goodwin, of Franklin county.....silver cup $25 00
On Irish potatoes, Charles M. Walker.....silver cup 25 00
On grasses of Indiana, Dr. R. T. Brown, of Montgomery county.....silver cup 25 00
On fruits of Indiana, Wm. H. Loomis, of Allen county.....silver cup 25 00
On the soils of Indiana, Ignatius Brown, of Marion county.....silver cup 25 00
On manures, Oliver Albertson, Washington county.....silver cup 25 00
On ditching and draining, R. J. Gatling, of Marion county.....silver cup 25 00
On fencing and hedging, Wilber F. Stone, Putnam county.....silver cup 25 00
On corn, no premium awarded.
On the dairy, Dr. R. T. Brown, of Montgomery county.....silver cup 25 00

MANUFACTURES OF THE STATE.

Best stove, Brinkmeyer & Klusman, Evansville.....silver cup $25 00
Best steam engine, Hasselman & Vinton, Indianapolis.....silver cup 25 00
Best bolt of cotton goods, Hamilton Smith, Cannelton.....silver cup 25 00
Best ten yards home made jeans, Daniel Brant, Indianapolis.....silver cup 25 00
Best pair of blankets, J. W. L. Matlock, Hendricks county.....silver cup 25 00
Best bolt of flannel, ten yards, J. W. L. Matlock, Hendricks county.....silver cup 25 00
Best ten yards of linen, Mrs. A. Black, Hancock county.....silver cup 25 00
Best piece of carpet not less than 20 yds., H. W. Parrot, Indianapolis.....silver cup 25 00

MECHANICAL PRODUCTIONS OF THE STATE.

Best set of chairs and bedstead, John Ott, Indianapolis.....silver cup $25 00
Best saddle and harness, James Sulgrove, Indianapolis.....silver cup 25 00
Best lot of edge tools, including axe and drawing knife, Newton Kellogg, Marion county.....silver cup 25 00
Best set of horse shoes and nails, with specimen of shoeing, Wilson & Horner, Richmond.....silver cup 25 00
Best lot of boots and shoes, Adam Knodle, Indianapolis.....silver cup 25 00
Best doors and sash, E. W. Brown, Indianapolis.....silver cup 25 00

Best farm implements, Beard & Sinex, Indianapolis.....silver cup 25 00
Best carriage, Hiram R. Gaston, Indianapolis.....silver cup 25 00

AGRICULTURAL IMPLEMENTS.

Best plow for Indiana, Beard & Sinex, Indianapolis and Richmond.....silver cup $25 00
Best farm wagon, W. J, & G. W. Forshee, Marion county.....silver cup 25 00
Best mower and reaper combined, J J. Mann & Son, Laporte county.....silver cup 25 00
Best thrasher and separator, A. Garr & Co., Richmond.....silver cup 25 00
Best horse power, A. Garr & Co., Richmond.....silver cup 25 00
Best corn sheller, Beard & Sinex, Indianapolis and Richmond.....silver cup 25 00
Best harrow and cultivator, Beard & Sinex, Indianapolis and Richmond.....silver cup 25 00
Best grain drill, R. J. Gatling, Indianapolis.....silver cup 25 00
Best straw cutter, Beard & Sinex, Indianapolis and Richmond.....silver cup 25 00

GENERAL LIST.—CLASS A—NO. 1.

CATTLE.

Best Bull 3 years old or over, Caldwell, Loder & McCollum, Fayette and Rush county.....silver pitcher $30 00
2d best, Valentine Lingenfelter, Hendricks county.....silver cup 20 00
Best Bull 2 years old or over, Milton Thornburgh, Wayne county.....silver cup 20 00
2d best, J. M. Maxwell, Wayne county.....silver cup 10 00
Best Bull 1 year old or over, J. W. L. Matlock, Hendricks county.....silver cup 10 00
2d best, Sol. Meredith, Wayne county..... 5 00
Best Bull Calf, McCollum & Caldwell, Fayette and Rush county.....silver cup 10 00
2d best, Valentine Lingenfelter, Hendricks county..... 5 00
Best Cow 3 years old or over, Sol. Meredith, Wayne county.....silver cup 20 00
2d best, Sol. Meredith, Wayne county.....silver cup 10 00
Best Heifer 2 years old, Levi Druly, Wayne county.....silver cup 10 00
2d best, George Davidson, Wayne county..... 5 00
Best Heifer one year old, Sol. Meredith, Wayne county.....silver cup 10 00
2d best, Smith Wooters, Union county..... 5 00
Best Heifer Calf, Isaac B. Loder, Rush county.....silver cup 10 00
2d best, Sol. Meredith, Wayne county..... 5 00

CLASS A.—NO. 2.

WORKING CATTLE.

Best pair over 4 years old, Jno. M. Shawhan, Rush county.....silver cup $20 00
2d best, J. Chandler, Hendricks county.....silver cup 10 00
Best pair under 4 years old, J. P. Forsyth, Johnson county.....silver cup 20 00
2d best, Samuel D. Baker, Marion county.....silver cup 10 00

CLASS A.—NO. 3.

FAT CATTLE OF ANY KIND.

Best fat bullock, George Davidson, Wayne county.....silver cup $20 00
2d best, John M. Shawhan, Rush county.....silver cup 10 00
Best fat cow, George Davidson, Wayne county.....silver cup 20 00
2d best, Sol. Meredith, Wayne county.....silver cup 10 00

CLASS A.—NO. 4.

STEERS.

Best Steer 3 years old, John M. Shawhan, Rush county.....silver cup $20 00
2d best, George Davidson, Wayne county.....silver cup 10 00
Best Steer 2 years old, George Davidson, Wayne county.....silver cup 10 00
2d best, John M. Shawhan, Rush county..... 5 00
Best pair of yearlings, David Commons, Wayne county.....silver cup 10 00
2d best, Samuel D. Baker, Marion county..... 5 00

CLASS A.—NO. 5.

MILCH COWS.

Entries made, but no premiums awarded, as the statements required in the rules and regulations were not complied with by exhibitors.

CLASS A.—NO. 6.

CATTLE FROM OTHER STATES.

Cow 3 years old, Jno. G. Couther, Clinton county, Ohio.....diploma.

Bulls reported as unworthy of the diploma.

CLASS A.—NO. 7.

SWEEPSTAKES OPEN TO ALL COWS OF ANY AGE.

Best Cow of any age, Levi Druly, Wayne county.....silver cup $20 00

The committee could not decide between four bulls on exhibition in this class, and so reported, recommending the premium back to the society. On motion, it was ordered that the names of the four bulls and owners be published.

CLASS B.—NO. 1.

HORSES FOR GENERAL PURPOSES.

Best stallion over 4 years old, Wm. Spinning & Co., Wayne county.....silver pitcher $30 00
2d best, Moore, Miles & Crawford, Hendricks county.....silver cup 20 00
Best brood mare over 4 years old, Wm. O. Rucker, Franklin county.....silver cup 20 00
2d best, Benjamin Fort, Henry county.....silver cup 10 00
Best stallion colt over 3 years old, R. H. Given, Dearborn county.....silver cup 10 00
2d best, Ludwell Elliott, Washington county.....cash 5 00
Best filly over 3 years old, J. N. Shawhan, Rush county.....silver cup 10 00
2d best, James Ferguson, Marion county.....cash 5 00
Best stallion colt over 2 years old, Jas. H. Harrison, Montgomery co.....silver cup 10 00
2d best, John G. Lewis, Fayette county.....cash 5 00
Best stallion colt over 1 year old, R. C. Foster, Decatur county.....silver cup 10 00
2d best, John Bates, Fayette county.....cash 5 00
Best sucking colt, J. D Cummins, Fayette county.....silver cup 10 00
2d best, John Allen, Putnam county.....cash 5 00
Best filly over 2 years old, John Bates, Fayette county.....silver cup 10 00
2d best, Samuel Case, Hamilton county.....cash 5 00
Best filly over one year old, J. T. Belles, Marion county.....silver cup 10 00
2d best, John G. Lewis, Fayette county.....cash 5 00
Best sucking filly, John Doty, Marion county.....silver cup 10 00
2d best, Joab Woodruff, Johnson county.....cash 5 00

CLASS B.—NO. 2.

HORSES FOR LIGHT HARNESS.

Best stallion 4 years old and over, M. R. Hull, Fayette county.....silver cup $20 00
2d best, J. A. Garrett, Sullivan county.....silver cup 10 00

Committee awarded a diploma to J S. Beatty & Co.'s horse "Victor," of Butler county, Ohio.

Best stallion under 4 years old, Benjamin Fort, Henry county.....silver cup 20 00
2d best, James M. Blaisdell, Dearborn county.....silver cup 10 00
Best gelding 4 years old and over, H. A. Fletcher, Marion county.....silver cup 10 00
2d best, S. Meredith, Wayne county.....cash 5 00
Best gelding under 4 years old, James McFadden, Wabash county.....silver cup 10 00
2d best, W. W. Demaree, Johnson county.....cash 5 00
Best mare 4 years old and over, J. S. Able, Johnson county.....silver cup 10 00
2d best, A Boyd, Wayne county.....cash 5 00
Best mare under 4 years old, J. N. Shawhan, Rush county.....silver cup 10 00
2d best, F. Hoop, Shelby county.....cash 5 00

CLASS B.—NO. 3.

HORSES FOR THE SADDLE.

Best gelding, W. Francisco, Jefferson county.....silver cup $10 00
2d best, J. M. Shawhan, Rush county.....cash 5 00
Best mare, Wood & Foudray, Marion county.....silver cup 10 00
2d best, Lewis Munker, Morgan county.....cash 5 00

CLASS B.—NO. 4.

TROTTING STALLIONS.

Best, W. T. Dennis, Wayne county, horse "Morgan Hector," 3:20.....silver cup $20 00
2d best, W. T. Dennis.....no award.

CLASS B.—NO. 5.

PACING STALLIONS.

Best, David O'Haver, Hendricks county.....silver cup $20 00
2d best, Francis Gradbe, Clark county.....silver cup 10 00

CLASS B.—NO. 6.

TROTTING AND PACING HORSES.

Best trotting mare or gelding, Clinton Taylor, Tippecanoe county.....silver cup $20 00
Best pacing mare or gelding, Joseph Ray, Jefferson county.....silver cup 20 00

CLASS B.—NO. 7.

FARM AND DRAUGHT HORSES.

Best stallion 4 years old and over, S. Donaldson, Rush county.....silver cup $20 00
2d best, Kemper & Clark, Rush county.....silver cup 10 00
Best stallion 3 years old, Samuel Case, Hamilton county.....silver cup 20 00
2d best, J. P. Forsyth, Johnson county.....silver cup 10 00
Best gelding 3 years old, Sanford Lackey, Wayne county.....silver cup 10 00
2d best, W. W. Demaree, Johnson county.....cash 5 00
Best gelding 2 years old, W. C. Hartsock, Marion county.....cash 5 00
2d best, Wm. Culbertson, Marion county.....Youatt on Horse.
Geldings one year old.....no award.
Best mare 3 years old, Wm. McCaw, sr., Marion county.....silver cup 10 00
2d best, Caleb B. Jackson, Wayne county.....cash 5 00
Best filly 2 years old, Jeremiah Allen, Marion county.....cash 5 00
Best filly 1 year old.....no award.

CLASS B.—NO. 8.

MATCHED HORSES.

Best, J. A. Bridgeland, Wayne county.....silver cup $20 00
2d best, S. Meredith, Wayne county.....silver cup 10 00

CLASS C.—NO. 1.

JACKS AND MULES.

Best jack 3 years old or over, Prewitt & Hutchinson, Montgomery co...silver pitcher $30 00
2d best, Moses Crawford, Hendricks county.....silver cup 20 00
Best jack 2 years old, John T. Hadley, Hendricks county.....silver cup 10 00
2d best, Caleb B. Jackson, Wayne county.....cash 5 00
Best jack colt, H. N. Adams, Parke county.....cash 5 00
Best jennet 3 years old, H. N. Adams, Parke county.....silver cup 20 00
2d best, David C. Adams, Parke county.....silver cup 10 00
Best jennet 2 years old, D. Commons, Wayne county.....silver cup 10 00

2d best.....no award.
Best span of mules, J. W. L. Matlock, Hendricks county.....silver cup 10 00
2d best, M. B. Robinson, Marion county.....cash 5 00
Best mule colt, George Bridges, Johnson county..... 5 00
2d best, George Bridges, Johnson county.....Youatt on Horse.

CLASS D.—NO. 1.

LONG WOOLED SHEEP.

Best buck over 2 years old, James Hammond, Wayne county.....silver cup $20 00
2d best. Nicholas Druly, Union county.....silver cup 10 00
Best buck under 2 years old, Fielding Beeler, Marion county.....silver cup 10 00
2d best, Fielding Beeler, Marion county.....cash 5 00
Best buck lamb, George Davidson, Wayne county.....cash 5 00
2d best, George Davidson, Wayne county.....cash 3 00
Best ewe over 2 years old, Henry Nichols, Hancock county.....silver cup 10 00
2d best, James Hammond, Wayne county..... cash 5 00
Best ewe under 2 years old, Wilber Baker, Marion county.....silver cup 10 00
2d best, Fielding Beeler, Marion county.....cash 5 00
Best ewe lamb. George Davidson, Wayne county.....cash 5 00
2d best, James Hammond, Wayne county.....cash 3 00

CLASS D.—NO. 2.

MIDDLE WOOLED SHEEP.

Best buck over 2 years old, Solomon Meredith, Wayne county.....silver cup $20 00
2d best, Joshua Dye, Wayne county.....silver cup 10 00
Best buck over 1 year old, Levi Druly, Wayne county.....silver cup 10 00
2d best, Solomon Meredith.....cash 5 00
Best buck lamb, Levi Druly, Wayne county.....cash 5 00
2d best, Levi Druly, Wayne county.....American Shepherd.
Best ewe over 2 years old, Solomon Meredith, Wayne county.....silver cup 10 00
2d best, Solomon Meredith, Wayne county.....cash 5 00
Best ewe under 2 years old, Levi Druly, Wayne county.....silver cup 10 00
2d best, Solomon Meredith, Wayne county.....cash 5 00
Best ewe lamb, Levi Druly, Wayne county.....cash 5 00
2d best, Levi Druly, Wayne county.....American Shepherd.

CLASS D.—NO. 3.

FINE WOOLED SHEEP.

Best buck over 2 years old, Jacob Taylor, Henry county.....silver cup $20 00
2d best, Alexander Black, Putnam county.....silver cup 10 00
Best buck over 1 year old. Levi Druly, Wayne county.....silver cup 20 00
2d best, Alexander Black, Putnam county.....silver cup 10 00
Best buck lamb, Alexander Black, Putnam county.....silver cup 10 00
2d best, D. Braden, Marion county.....cash 5 00
Best ewe over 2 years old. Alexander Black, Putnam county.....silver cup 10 00
2d best, fielding Beeler, Marion county.....cash 5 00
Best ewe over 1 year old, Alexander Black, Putnam county.....silver cup 10 00
2d best, Fielding Beeler, Marion county.....cash 5 00
Best ewe lamb, Alexander Black, Putnam county.....cash 5 00
2d best, Jacob Taylor, Henry county.....American Shepherd.

CLASS D.—NO. 4.

FAT SHEEP.

Best fat sheep, George Davidson, Wayne county.....silver cup $10 00
2d best, Fielding Beeler, Marion county.....cash 5 00

CLASS D.—NO. 5.

SHEEP FROM OTHER STATES.

Best fine wooled buck, L. W. Pease, Vermont.....diploma.
Best fine wooled ewe, L. W. Pease, Vermont.....diploma.

CLASS E.—NO. 1.

HOGS.

Best boar over 2 years old, J. W. L. Matlock, Hendricks county.....silver pitcher $30 00
2d best, Moses Bradford, Grant county.....silver cup 10 00
Best boar over 1 year old, Titus Baker, Marion county.....silver cup 10 00
2d best, Irve Smith, Wayne county.....cash 5 00
Best boar under 1 year old, Franklin Caldwell, Rush county.....silver cup 10 00
2d best, Irve Smith, Wayne county.....cash 5 00
Best breeding sow 2 years old or over, Christian Fisher, Putnam county.....silver cup 20 00
2d best, A. M. Padduck, Union county.....silver cup 10 00
Best breeding sow 1 year old or over, J. W. L. Matlock, Hendricks county...silver cup 10 00
2d best, William McEwen, Bartholomew county.....cash 5 00
Best sow under 1 year old, Nathaniel M. Paddock, Union county.....silver cup 10 00
2d best, A. C. Stevenson, Putnam county.....cash 5 00
Best pair of shoats under ten months old, Irve Smith, Wayne county.....silver cup 10 00
2d best, Irve Smith, Wayne county.....cash 5 00
Best five pigs under six months old, Moses Bradford, Grant county.....silver cup 10 00
2d best, William McEwen, Bartholomew county.....cash 5 00

CLASS F.—NO. 1.

SWEEPSTAKES FOR BEST ANIMALS.

Best stallion, J. S. Beatty & Co., Butler county, Ohio, "Grey Highlander"...silver cup $20 00
Best mare, Jaber Hiatt, Wayne county.....silver cup 20 00

CLASS F.—NO. 2.

Best buck, James Hammond, Wayne county.....silver cup $20 00
Best ewe, Solomon Meredith, Wayne county.....silver cup 20 00

CLASS F.—NO. 3.

Best boar, Irve Smith, Wayne county.....silver cup $20 00
Best sow, Alexander M. Paddock, Union county.....silver cup 20 00

CLASS G.—NO. 1.

POULTRY.

Best pair of Shanghais, John M. Bowles, Marion county.....cash $3 00
Best pair of Bramah Pootras, G Standart, Attica.....cash 3 00
Best pair of Cochin Chinas, George Southard, Indianapolis.....cash 3 00
Best pair of Dorkings, O. M. Bartlow, Brookville.....cash 3 00
Best pair of Chittagorge, A. H. & J. W. Vestal, Wayne county.....cash 3 00
Best pair of Polands, Joshua Dye, Wayne county.....cash 3 00
Best pair of Seabright Bantams, A. H. & J. W. Vestal, Wayne county.....cash 3 00
Best pair of African Bantams, George Langsdale, Indianapolis.....cash 3 00
Best pair of Sumatra Game, David Hays, Indianapolis.....cash 3 00
Best collection of fowls, John M. Bowles, Marion county.....set tea spoons.

CLASS G.—NO. 2.

TURKIES, GEESE AND DUCKS.

Best common turkeys, George W. Butcher, Marion county.....cash $3 00
Best pair of China geese, Joshua Dye, Wayne county.....cash 3 00
Best pair of large geese, John G. Webb, Marion county.....cash 3 00

Best pair of wild geese, George W. Butcher, Marion county.....cash 3 00
Best common ducks, George W. Butcher, Marion county.....cash 3 00
Best collection of turkeys, geese and ducks, Geo. W. Butcher, Marion co.....set tea spoons.
Best pigeons, George W. Butcher, Marion county.....cash 3 00

CLASS H.—NO. 1.

PLOWS AND PLOWING MATCH.

Best plow for clay soil, S Horney & Co., Richmond.....silver cup $10 00
Best plow for light sand soil, S. Horney & Co., Richmond.....silver cup 10 00
Best plow for breaking prairie, Beard & Sinex, Indianapolis.....silver cup 10 00
Best plow for sward, Birkenmeyer & Brewster, Indianapolis.....silver cup 10 00
Best side hill plow, S. Horney & Co., Richmond.....silver cup 10 00
Best sub-soil plow, Beard & Sinex, Indianapolis ..... silver cup 10 00
The committee made no award to plowmen for best plowing.

CLASS H.—NO. 2.

FARMING IMPLEMENTS.

Best corn-planter, L. Wallace, Crawfordsville, awarded by executive committee.....silver cup $10 00
Best field roller, James Griswold, Marion county.....silver cup 10 00
Best horse rake, Beard & Sienx, Indianapolis.....silver cup 10 00
Best ox cart, James Griswold, Marion county..... 5 00
Best hay rigging, Samuel D. Baker, Marion county..... 3 00
Best wheelbarrow, Gauze & Webb, Indianapolis..... 3 00
Best ox yoke, Birkenmeyer & Brewster, Indianapolis..... 3 00

CLASS H.—NO. 3.

FARM IMPLEMENTS.

Best mowing machine, D. C. Henderson & Co., Sandusky, Ohio.....silver cup $20 00
Best one horse power, Birkenmeyer & Brewster, Indianapolis .....diploma and $10 00
Best corn and cob mill, D. S. Waggoner, Penn Yan, N. Y.....dip'oma and 10 00
Best fanning mill, Thos. D Lemmon, Laporte county.....diploma and 10 00
Best cider mill. Emery Brothers, Albany, N. Y.....silver cup 10 00
Best churn, Wm. H. Buford, Indianapolis.....silver cup 10 00

CLASS H.—NO. 4.

FARM IMPLEMENTS.

Best grain cradles, Beard & Sinex, Indianapolis .....diploma and $5 00
Best hay forks, Beard & Sinex, Indianapolis .....diploma and 3 00
Best straw forks, Birkenmeyer & Brewster, Indianapolis.....diploma and 3 00
Best manure forks, Beard & Sinex, Indianapolis .....diploma and 3 00
Best grass scythes, J. B. Johnson, Cleveland, Ohio.....diploma.
Best grain scythes, J. B. Johnson, Cleveland, Ohio.....diploma.
Best briar scythes, Beard & Sinex, Indianapolis .....diploma and $3 00
Best six picks, Birkenmeyer & Brewster, Indianapolis .....diploma and 3 00
Best six mattocks, Birkenmeyer & Brewster, Indianapolis.....diploma.
Best six scythe sneaths, Beard & Sinex, Indianapolis .....diploma.
Best six shovels, Beard & Sinex, Indianapolis.....diploma.
Best six spades, Beard & Sinex, Indianapolis.....diploma.
Best grain scoops, Beard & Sinex, Indianapolis.....diploma.
Best post digger, Beard & Sinex, Indianapolis.....diploma.
Best apple parer, J. R. Coe, Lake co .....diploma.
Best wood pump, Wm. L. Rubottom, Indianapolis.....diploma and 5 00
Best display of farm implements, Beard & Sinex, Indianapolis.....silver cup 10 00

CLASS I.—NO. 1.

LEATHER AND LEATHER MANUFACTURES.

Best double carriage harness, Leyman Taylor, Lafayette.....silver cup $10 00
Best single carriage harness, James Sulgrove, Indianapolis.....diploma and 5 00
Best wagon harness, Eli C. Sulgrove, Indianapolis.....diploma and 5 00
Best pair of fine boots, Adam Knodle, Indianapolis.....diploma and 3 00
Best ladies' gaiters, Adam Knodle, Indianapolis.....diploma and 2 00
Best harness leather, Fishback & Davis, Indianapolis.....diploma and 3 00
Best sole leather, Fishback & Davis, Indianapolis.....diploma and 3 00
Best calf skins, Fishback & Davis, Indianapolis.....diploma and 3 00

CLASS I.—NO. 2.

CARRIAGES AND CABINET FURNITURE.

Best buggy, Charles W. Veatch, Connersville.....silver cup $10 00
2d best, Bagley & Rose, Laporte.....cash 5 00
Best sofas, John Ott, Indianapolis.....silver cup 10 00 and dip.
Best dressing bureaus, John Ott, Indianapolis.....diploma and 5 00
Best rocking chair, sofa seat, John Ott, Indianapolis.....diploma and 5 00
Best set chairs—common, J. M. & A. L. Tilford, Indianapolis.....diploma and 5 00
Best center table, John Ott, Indianapolis.....diploma and 5 00
Best dining table, James Huey, Indianapolis.....diploma and 5 00
Best pair side tables, James Huey, Indianapolis.....diploma and 5 00
Best workstand, Mrs Patterson, Jeffersonville.....diploma and 3 00
Best what not J. M. & A. L. Tilford, Indianapolis.....diploma and 3 00
Best secretary and book case, John Ott, Indianapolis.....silver cup 10 00
Best display of furniture, J. M. & A. L. Tilford, Indianapolis..diploma and silver cup 10 00
Best specimen of carving, John Ott, Indianapolis.....diploma and 5 00
Best specimen of gilt or carved frames, J. G. Hanning & Co, Indianapolis.....cash 3 00

CLASS J.—NO. 1.

DOMESTIC MANUFACTURES, HOUSEHOLD FABRICS.

Best ten yards linen diaper, Miss Alice Williams, Delaware co.....cash $5 00
2d best, Mrs. P. Howland, Marion co.....cash 3 00
Best fifteen yards tow cloth, Mrs. Charles G. Dungan, Johnson co.....cash 5 00
Best hearth rug, Mrs. Mary F. Ramsay, Jefferson co.....cash 5 00
2d best, Mrs. Mary F. Ramsay, Jefferson co.....cash 3 00
Best rag carpet, Charles G. Dungan, Johnson co.....cash 5 00
2d best, John Tufts, Dearborn co.....cash 3 00
Best double carpet coverlet, Sarah Perrot, Marion co.....cash 5 00
2d best, James Muir, Marion co.....cash 3 00
Best woolen knit stockings, Mrs. Lucinda Tousey, Dearborn co.....cash 2 00
2d best, Mrs. E. Harrison, Montgomery co.....cash 1 00
Best linen knit stockings, Mrs. F. Brenneman, Marion co.....cash 2 00
2d best, Mrs. A. W. Webb, Marion co.....cash 1 00
Best cotton stockings, Mrs. F Brenneman, Marion co.....cash 2 00
2d best, Mrs A. W. Webb, Marion co.....cash 1 00
Best linen sewing thread, Mrs. F. Brenneman, Marion co.....cash 2 00
2d best, Thomas P. Wooten, Randolph co.....cash 1 00
Best woolen knit fringe mittens, Mrs. Joseph Goudie, Franklin co.....cash 2 00
2d best, Mrs. Allen Loyd, Lafayette.....cash 1 00
Best linen handkerchiefs, Mary Cooper, Indianapolis.....diploma and 1 00
Best netting, Miss E. McKee, Madison.....diploma and 1 00
Best stocking yarn, Daniel Brant, Marion co.....diploma and 1 00
Best mill bag, Mrs. F. Brenneman, Marion co.....diploma and 1 00
Best woolen knit drawers, Ward & Clagstone, Lewisville, Henry co.....diploma and 1 00
Best woolen knit shirt, Ward & Clagstone, Lewisville, Henry co.....diploma and 1 00

CLASS J.—NO. 2.

NEEDLE WORK.

Best ornamental needle work, Mrs. S. H. Patterson, Jeffersonville.....set tea spoons.
Best ottoman cover, Ellen B. Whitney, Madison.....set tea spoons.
Best table cover, Emeline Bower, Marion co.....$5 00
Best group of flowers, Mrs. J. G. Weeks, Marion co..... 2 00
Best fancy chair work, Mrs. Lydia A. Chapman, Marion co..... 2 00
Best fancy worsted work, Helena Levinson, Shelby co..... 2 00
Best fancy chair tidy, C. N. Todd, Marion co..... 2 00
Best worked quilt, other than silk, Mrs. D. H. Tyner, Wabash co.....set tea spoons.
Best white quilt, Mrs. Thomas H Sharp, Marion co.....set tea spoons.
Best silk quilt, Mrs. S. Sharp, Johnson co.....set tea spoons.
Best knit quilt, Mrs. Crosby, Terre Haute.....set tea spoons.
Best worked slippers, Mrs. Lucinda Tousey, Dearborn co.....$2 00
Best child's sack, Mrs. C. W. Cady, Marion co..... 2 00
Best dress cap, Mrs. J. Brown, Marion co..... 2 00
Best mantilla, Miss Wittenberg, Terre Haute..... 2 00
Best wash stand mats, Mrs. H. W. Ellsworth, Marion co..... 2 00
Best parlor lamp mats, Mrs. Thomas H Sharp, Marion co.....Practical Farmer and 2 00
Best ornamental shell work, Miss Sarah A. Hunt, Moorsville.....set tea spoons.
Best artificial flowers, Mrs. J. G. Weeks, Marion co. .....Tippecanoe Farmer and $2 00
Best piano cover, Mrs. Lucinda Tousay, Dearborn co., awarded by ex. com....set tea spoons.

CLASS K.—NO. 1.

AGRICULTURAL PRODUCTS.

Best 10 acres on prairie or alluvial soil, Jno. W. Wright, Switzerland co., silver pitcher $30 00
Best 10 acres on clay or upland soil, Nathaniel Thompson, Shelby co.....silver pitcher 30 00
Best 5 acres on prairie or alluvial soil, Nathaniel Thompson, Shelby co.....silver cup 20 00
Best 5 acres corn on clay or upland soil, W. R. Skinner, Johnson co, ... silver cup 20 00
Best 10 acres wheat, F. Caldwell, Rush co.....silver cup 30 00
Best 5 acres wheat, J P. Forsyth, Johnson co.....silver cup 20 00
Best 5 acres oats.....no award.
Best 5 acres Timothy, J. D. Williams, Knox co.....silver cup $10 00
Best 5 acres clover, J. D. Williams, Knox co.....silver cup 10 00
Best quarter acre potatoes, Samuel D. Baker, Marion co.....silver cup 10 00

CLASS K.—NO. 2.

AGRICULTURAL PRODUCTS.

Best half bushel corn in the ear, O. W. Voorhis, Marion co.....Indiana Farmer and $2 00
Best half bushel wheat, Andrew Avery, Marion co.....Tippecanoe Farmer and 2 00
Best half bushel rye, S. W. Scofield, Marion co.....Practical Farmer and 2 00
Best half bushel barley, O. W. Voorhis, Marion co.....Tippecanoe Farmer and 2 00
Best half bushel flax seed, Jesse Yount, Marion co.....Practical Farmer and 2 00
Best half bushel timothy seed, Birkenmeyer & Brewster,
Indianapolis.....Indiana Farmer and 2 00
Best half bushel clover seed, Geo. Crawford, Laporte co.....Tippecanoe Farmer and 2 00
Best half bushel blue grass seed, Birkenmeyer & Brewster,
Indianapolis.....Practical Farmer and 2 00
Best half bushel orchard grass seed, Birkenmeyer & Brewster,
Indianapolis.....Indiana Farmer and 2 00
Best half bushel millet seed, Birkenmeyer & Brewster, Indianapolis....Tip. Farmer and 2 00
Best collection of different varieties of seed corn, L. S Vanscholack,
Wayne co.....silver cup 10 00

CLASS K.—NO. 3.

VEGETABLES.

Best 12 long blood beets, S. B. Mattox, Madison.....Indiana Farmer and $2 00
Best 12 turnip beets, J. K. Sharpe, Indianapolis .....Tippecanoe Farmer and 2 00

Best 12 sugar beets, J. K. Sharpe, Indianapolis..... Practical Farmer and $2 00
Best 12 carrots, E. Bristoe, Marion co.....Indiana Farmer and 2 00
Best 12 parsnips, E Bristoe, Marion co..... ...Tippecanoe Farmer and 2 00
Best 12 turnips, Emsly Wright, Marion co.....Practical Farmer and 2 00
Best 12 ruta baga, F. Beeler, Marion co..... .Indiana Farmer and 2 00
Best 12 mangel wurtzel, F. Beeler, Marion co.....Tippecanoe Farmer and 2 00
Best 6 cabbages, A. H. & J. W. Vestal, Wayne co.....Practical Farmer and 2 00
Best 12 stalks celery, J. Traub, Marion co.....Practical Farmer and 2 00
Best 12 egg plants, Geo. W. Butcher, Marion co..... .....Indiana Farmer and 2 00
Best peck white onions, P. Woods, Marion co.....Tip. Farmer and 2 00
Best peck red onions, C L. Allison, Putnam co.....Practical Farmer and 2 00
Best peck red tomatoes, Geo. W. Butcher, Marion co.....Tip. Farmer and 2 00
Best yellow tomatoes, M. Pearson, Marion co .....Practical Farmer and 2 00
Best quart lima beans, J. Loucks, Marion co.....Indiana Farmer and 2 00
Best half bushel potatoes C. R. Rhodes, Marion co.....Tip. Farmer and 2 00
Best half bushel sweet potatoes, A. H. & J. W. Vestal, Wayne co.....Tip. Farmer and 2 00
Best 3 squashes, E. Hartwell, Tippecanoe co.....Indiana Farmer and 2 00
Best 3 pumpkins, J. H. Shimer, Marion co.....Tip. Farmer and 2 00
Best 6 watermelons, W. Doty, Randolph co..... 3 00
2d best, R. Ragan, Putnam co..... ..... 2 00
Best 6 muskmelons, W. Doty, Randolph co..... 3 00

CLASS L.—NO. 1.

FRUITS.

Best collection of fruits of all kinds, grown within the State by the exhibitor, Joseph Orr, Laporte county ....silver cup $20 00
Second best, R. W. Todd, Jefferson county .....silver cup 10 00
Best 12 varieties of apples, 4 of each, Henry Myers, St. Joseph county.....silver cup 10 00
Second best A M. Jessup, Laporte county..... ..... 5 00
Best 6 varieties of apples, R. Ragan, Putnam county.....silver cup 10 00
Second best, Henry Myers, St Joseph county..... ..... 5 00
Best collection of winter apples, A. M. Jessup, Laporte county.....silver cup 10 00
Second best, Henry Myers, St. Joseph county..... 5 00
Best 10 varieties pears, Alden Tucker, Laporte county ....silver cup 10 00
Second best James T. Brown, Indianapolis..... 5 00
Best 5 varieties pears, R Ragan, Putnam county..... 5 00
Second best..... ....no award.
Best 5 varieties fall pears, P. Howland, Marion county..... $5 00
Second best, Alden Tucker, Laporte county..... 3 00
Best 5 varieties winter pears, Alden Tucker, Laporte county..... 5 00
Second best.....no award.
Best collection of peaches, J. W. Wright, Switzerland county..... .....set tea spoons.
Second best, T C. Hudson, Laporte county..... $3 00
Best 12 quinces, Mrs. J. W. Wright, Switzerland county.....set tea spoons.
Second best John Carlisle, Indianapalis $3 00
Best collection of grapes grown in the open air, R. W. Todd, Jefferson county, set tea spoons.
Second best .....no award.
Best seedling grape, R. W. Todd, Jefferson county.....set tea spoons.
Best half bushel cranberries, John A. Burbank, of Starke county.....silver cup $10 00
Second best, John A. Burbank, Starke county 5 00

CLASS M.—NO. 1.

FLOWERS.—PROFESSIONAL LIST.

Greatest variety and quantity of cut flowers, Mrs. S. H. Patterson, Clark co., set tea spoons.
Second, Mrs. M Temperly. Madison.....Western Horticultural Review.
Greatest variety of dahlias, A. Loyd & Sons, Tippecanoe county .....set tea spoons.
Second, Miss E. J. Todd, Madison.....Western Horticultural Review.
Best twelve dissimilar blooms dahlias, Miss E. J. Todd, Madison, Indiana Farmer and $2 00

Second best.....no award.
Greatest variety roses, Mrs. S. H Patterson, Clark co., West. Horticultural Review and $5 00
Second, Mrs. M. Temperly, Madison.....Practical Farmer and 3 00
Best twelve dissimilar blooms roses, W. H. Loomis, Fort Wayne, Indiana Farmer and 3 00
Second best, A. Loyd & Son, Tippecanoe county.....Western Horticultural Review.
Best six varieties of phloxes, A. Loyd & Son, Tippecanoe co., West. Hort. Review and $3 00
Second best, W. H. Loomis, Fort Wayne.....Beck's Book of Flowers.
Best and greatest variety of verbenas, A. Loyd & Son, Tip. co., West. Hort Review and $3 00
Second best.....no award.

CLASS M.—NO. 2.

FLOWERS.—AMATEUR LIST.

Best floral ornamental design, Mrs. Allen Loyd, Lafayette, Ind.....set tea spoons.
Second best, Mrs. Matthew Temperly, Madison, Ind.....Western Horticultural Review.
Best pair hand bouquets, flat, D. S. Place, Putnam county.....diploma and $3 00
Second best, Mrs. Allen Loyd, Lafayette, Ind.....Indiana Farmer.
Best hand boquet, round, Mrs. Allen Loyd, Lafayette.....diploma and $3 00
Second best, George W. Butcher, Marion county, Ind.....Practical Farmer.
Best and largest basket boquet, with handle, Mrs. Allen Loyd, Lafayette, Western Horticultural review and..... $3 00
Second, Mrs. Matthew Temperly. Madison.....Tippecanoe Farmer.
Most beautifully arranged basket of flowers, Miss E. J. Todd, Madison, Western Horticultural Review and..... $3 00
Second, Mrs. Pitcher, Madison.....Indiana Farmer.
Best collection of green-house plants, A. Loyd & Son, Lafayette.....set tea spoons.
Second, Miss Rebecca N. Fry, Indianapolis.....Western Horticultural Review.

CLASS N.—NO. 1.

EDGE TOOLS.

Best 12 knives and forks, Henry Hunter, Richmond.....diploma and $3 00
Best 6 butcher knives, Henry Hunter, Richmond.....diploma and 2 00
Best fine cutlery, not before specified, Henry Hunter, Richmond.....diploma.

CLASS N.—NO. 2.

WORKED METALS AND HARDWARE.

Best cooking stove for wood, Brown & Lockwood, Dayton, O.....diploma and $5 00
Best parlor stove for wood, Brown & Lockwood, Dayton, O.....diploma and 3 00
Parlor stove for coal, R. L. & A. W. McOuat, Indianapolis.....diploma and 3 00
Specimen brass and copper ware, R. L. & A. W. McOuat, Indianapolis....diploma and 3 00
Cast iron fire place and grate, R. L. & A. W. McOuat, Indianapolis.....diploma.

CLASS N.—NO. 3.

ENGINES AND MACHINERY.

Best fire engine, E. Haugh, Indianapolis.....silver cup $10 00
Best hose reel, Marion Engine, Indianapolis.....silver cup 10 00
Garden engine, A. D. Baker, Cincinnati, O.....diploma and 5 00
Hand loom, John G. Garretson, Henry county, Iowa.....silver cup 10 00
Lathe for all purposes, Hasselman & Vinton, Indianapolis.....silver cup 10 00
Machine for making laths, J. L. Brown, Indianapolis.....silver cup 10 00
Smut machine, Massey, Frame & Co., South Bend.....silver cup 10 00
Stone sawing machine. John D. Chipman, Delaware county.....silver cup 10 00
Pump for a well, S. O. O. Niles, Cincinnati, O.....diploma and 5 00
Pump for a cistern, A. D. Baker, Cincinnati, O.....diploma and 5 00
Water ram for hydraulic apparatus, T. K. Kecheler, Cincinnati, O.....diploma and 5 00
Cattle and hay scales, Browning & Mayer, Indianapolis.....silver cup $10 00
Platform scales, Browning & Mayer, Indianapolis.....diploma and 5 00
In this class in Nos. 10, 11. and 12, the committee recommend some remuneration.

CLASS O.—NO. 1.

COOPERAGE AND WOODEN WARE.

Flour barrel L. B. Morrison, Cambridge City.....diploma and $2 00
Wash tub, S. Swindell & Co., Indianapolis.....diploma.
Half dozen buckets, S. Swindell & Co., Indianapolis.....f.....diploma and $1 00
Washing machine, John Cokefair, Wayne county.....diploma and 5 00
Panel door, E. W. Brown, Indianapolis.....diploma and 5 00

CLASS O.—NO. 2.

PAINTINGS AND DRAWINGS.

Best specimen of landscape painting in oil, Jacob Cox, Indianapolis.....silver cup $10 00
Water colors, Mrs. C. A Howland, Marion county.....diploma and 5 00
Portrait painting, Jacob Cox, Indianapolis.....diploma and 5 00
Animal painting, Jacob Cox, Indianapolis.....silver cup 10 00
Fruit painting, Jacob Cox, Indianapolis.....diploma and 5 00
Flower painting, Miss Ellen B. Whitney, Madison.....diploma and 5 00
Daguerreotypes, W. H. Weeks, Indianapolis.....diploma and 5 00
Penmanship, T. J. Bryant, Columbus.....diploma and 3 00
Crayon drawing, Mrs. Frances S. Locke.....diploma and 5 00
Pencil drawing, Mrs. C. A. Howland, Marion county.....diploma and 5 00
Pen drawing, S. S. Hannah, Indianapolis.....diploma and 2 00
Sign painting, H. J. Majo, Indianapolis.....diploma and 3 00

CLASS O.—NO. 3.

MECHANICAL PRODUCTIONS.

Silk hats, Samuel Wilmot, Indianapolis.....diploma and $3 00
Book binding, Delzell and Tyler, Indianapolis.....diploma and 5 00
Book printing, Elder & Harkness, Indianapolis.....diploma and 5 00
Guns and rifles, Burns Slidow, Greensburg.....diploma and 3 00
Mattresses, J. M. & A. L. Tilford, Indianapolis.....diploma and 3 00
Stone ware, Torbert and Hawthorne, Indianapolis.....diploma and 2 00
Earthen ware, Samuel N. Foulke, Indianapolis.....diploma and 2 00
Soft soap, H. C. Long, Indianapolis.....diploma and 2 00
Bar soap, Miss Sarah White, Indianapolis.....diploma and 2 00

CLASS P.—NO. 1.

BUTTER AND CHEESE.

Best ten pounds butter made in June, Mrs. J. D. Wilson, Decatur county... silver cup $20 00
Second best, Mrs. Powell Howland, Marion county.....silver cup 10 00
Best ten pounds butter made in September, Mrs. C A Howland, Marion co., silver cup 20 00
Second best, Benjamin Blue, Marion county.....silver cup 10 00
Best cheese, 25 pounds or over, one year old or over, D. G. Rose, Laporte co., silver cup 20 00
Second best, D. G. Rose, Laporte county.....silver cup 10 00
Best cheese, 25 pounds or over, under 1 year old, Isaac Parker, Henry co....silver cup 20 00
Second best, Mrs. Joseph Goudie, Franklin county.....silver cup 10 00
Best butter and cheese from one dairy, Levi L. Darling, Laporte county.....silver cup 20 00
Second best, Mrs. Mary F. Ramsay, Jefferson county.....silver cup 10 00

CLASS Q.—NO. 1.

SUGAR, HONEY, &C.

Best ten pounds maple sugar, D. Hall, Rush county.....set tea spoons.
Second best, Henry Myers, St. Joseph county.....cash $3 00
Best ten pounds honey, Chester S. Gould, Wayne county.....set tea spoons.
Second best, M. Butterfield, Marion county.....cash $3 00

Home-made bread, Mrs F. Cassett, Indianapolis..... diploma and 2 00
Cakes, Miss Caroline Bacon, Marion county.....diploma and 2 00
Cured hams, Julius Nicolai, Marion county.....diploma and 3 00
Greatest variety of pickles, E. J Todd, Jefferson county.....set tea spoons.
Second, Miss Mary A. Hammond, Wayne county .....diploma and $3 00
Preserved peaches, Mrs. E. G. Ward, Indianapolis .....diploma and 2 00
Preserved plums, Mrs Pamelia Wood, Marion county..... ....diploma and 2 00
Preserved fruit, in brandy or otherwise, Mrs. Sarah A. Smith, Indianapolis.....set tea spoons.
Currant jelly, Miss Mary A. Hammond, Wayne county.....diploma and 1 00
Apple jelly, Miss Cornelia Little, Jefferson county.....diploma and 1 00

CLASS R.—NO. 1.

USEFUL AND ORNAMENTAL.

For Girls under Eighteen Years.

Best ten pounds butter made in June, Miss Ellen Baker, Marion county.....silver cup $10 00
Second best, Mary M. Yates, Putnam county.....tea spoons 5 00
Best ten pounds butter made in September, Miss Caroline Bacon, Marion co., silver cup 10 00
Second best, Miss Ellen Darling, Laporte county .....tea spoons 5 00
Best 5 pounds butter, made at any time, Lucinda D. Carlisle. Indianapolis, tea spoons 5 00
Second best, Miss Mary E. Johnson, Marion county.....sugar spoons 2 50
Best cheese, ten pounds or over, Miss Ellen Darling, Laporte county.....silver cup 10 00
Second best. Miss Ellen Baker, Marion county.....tea spoons 5 00
Best patchwork quilt, Miss Elmira W. Crawford, Hendricks county.....tea spoons 10 00
Second best, Miss Catharine E. Michael, Indianapolis.....sugar spoons 2 50
Pair woolen blankets, Miss Elvira Ramsey, Jefferson county.....tea spoons 5 00
Woolen knit stockings, Miss Joanna S. Stevenson, Greencastle ..... cream spoon 2 50
Pair cotton knit stockings, Miss L. J. Smith, Madison.....cream spoon 2 50
Pair woolen socks, Miss Mary E. Webb. Marion county..... sugar spoon 2 50
Pair woolen mittens, Miss Mary E. Webb, Marion county..... cream spoon 2 50
Made dress, Mary E. Johnson, Marion county.....tea spoons 5 00
Sample of useful needle-work, Anna M. Smith, Indianapolis .....tea spoons 5 00
Sample of ornamental needle-work, Miss Mary Worth, Vanderburgh co.....tea spoons 5 00
Specimen of penmanship, Miss Mary J. Patterson. Jeffersonville.....silver pencil 3 00
Best specimen of painting in oil, Miss Mary J. Patterson, Jeffersonville.....tea spoons 5 00
Second best, Mary J. Patterson, Jeffersonville.....silver pencil 3 00
Best specimen of painting in water colors, Mary Jones, Vanderburgh co.....tea spoons 5 00
Second best, Mary E. Brown, Indianapolis .....silver pencil 3 00
Geranium in pot, Rebecca A. Loyd, Lafayette..... cream spoon 2 50
Collection of geraniums, Miss Kate Temperly, Madison.....tea spoons 5 00
Verbena in pot, Miss Kate Temperly, Madison.....cream spoon 2 50
Collection of verbenas, Rebecca A. Loyd, Lafayette.....tea spoons 5 00
Rose bush in pot, Miss Kate Temperly, Madison.....sugar spoon 2 50
Collection of roses, Miss Kate Temperly, Madison.....tea spoons 5 00
Fuschia in pot, Rebecca A. Loyd, Lafayette..... .....cream spoon 2 50
Collection of fuschia, Rebecca A. Loyd, Lafayette.....tea spoons 5 00
Cactus, Miss Bessie Temperly, Madison.....sugar spoon 2 50
Best collection of plants in pots, not less than six varieties, Rebecca A. Loyd, Lafayette..... silver cup 10 00
Second best, Bessie Temperly, Madison .....tea spoons 5 00
Display of cut flowers, Rebecca A. Loyd, Lafayette.....silver pencil 3 00
Best boquet, Rebecca A. Loyd, Lafayette ....silver pencil 3 00
Second best, Mary J. Patterson, Jeffersonville.....silver pencil 1 50
Best floral ornament, Mary E. Brown, Indianapolis..... ...silver cup 10 00
Second best, Kate Temperly, Madison.....tea spoons 5 00
Linen sewing thread, Ann K. Smith, Delaware county..... 2 00
Best lamp mats, Georgia Ann Bird, Indianapolis..... 2 00
Second best, Sarah T. Eddy, Indianapolis 1 00
Chair tidy, Miss Sarah Blake, Indianapolis 1 00
Knit collar, Joanna Swinehart..... ....diploma.

Horn basket, Joanna Swinehart ..... diploma.
Best fancy leather work, Miss Sarah J. Crawford, Hendricks county $4 50
White quilt, Miss Mary White 2 00
Bureau cover, Miss Mary White, Indianapolis 2 00
Embroidered collar, Mary E. Cully, Indianapolis 1 00
Fancy worsted work, Miss Ellen M. Little, Jefferson county 2 00
Needle books, Miss Mary J. Fultz, Indianapolis ..... diploma.
Undersleeves, Miss Frances Hare, Indianapolis $1 00
Woolen knit gloves, Miss Elvira Ramsay, Jefferson county 2 50
Silk quilt, Miss Arabella Bacon, Paris, Ky 5 00
Worked linen handkerchief, Miss Arabella Bacon, Paris, Ky 2 00
Best ottoman cover, Miss Ellen M. Little, Jefferson county 2 50
Second best, Miss Cornelia Little, Jefferson county 2 00
Worked basket, Emma L. Higby, Jefferson county 1 00
Tape collar, Miss E. A. Coburn, Indianapolis 2 50
Writing in four languages, Mary Jane Patterson, Jeffersonville 5 00
Pencil drawing, Miss Mary Worth, Vanderburgh county 3 00
Variety of pickles, Miss L. J. Smith, Madison 2 00
Jar of peaches, Miss. L. J Smith, Madison 2 00
Cloth rug, Miss L. J. Smith, Madison ..... diploma.
Worked apron, Miss H. A. Smith, Madison $1 00
Woolen knit footings, Miss Lucy Morrill, Indianapolis ..... diploma.
Table cover, Miss Adeline Bright, Henry county $2 00
Worked dress, Elizabeth Wolf, Indianapolis 1 00
Embroidered work, Miss Myrtilla Cassett 2 00
Palm-leaf tidy, Miss Lissie Blachard 2 00
Worked skirt, Miss. R. B. Emerson, Indianapolis 2 50
Fancy saddle blanket, Miss Mary Jane Patterson, Jeffersonville 2 00
Linen towels Miss Ann K. Smith, Delaware county 1 50
Toilet cushion, Miss Ellen Darling, Laporte 1 00
Table mats, Miss Ellen Darling, Laporte 1 50
Sampler, Miss Lydia H Hiney, Marion county 2 00
Ladies' scarf, Miss Sidney A. Webb, Indianapolis 2 00
Stand cover, Miss Sidney A. Webb, Indianapolis ..... diploma.
Linen table cloth, Miss Ann K. Smith, Delaware county 2 00
Artificial flower work, or design, Miss Margaret B. Brown Indianapolis ..... diploma.
Card basket, Miss Lizzie Blachard, Delaware county 2 00

CLASS S.—NO. 1.

COAL, ORES, &C.

Best specimen of Indiana coal, not less than five hundred pounds, James Lowden, Indianapolis ..... silver cup $20 00
Best specimen of Indiana iron ore, not less than one hundred pounds, N. Thomas, Fountain county ..... silver cup 20 00
Best specimen of Indiana marble, W. S Tilson, Decatur county ..... silver cup 20 00

DISCRETIONARY PREMIUMS.

AWARDED BY REGULAR COMMITTEES.

CLASS J.—NO. 1.

Best linsey, Mrs. L. Oldham, Orange county $2 00
2d best, Mrs. A. Black, Hancock county 1 00
3d best, Mrs. John Manough, Clarke county 1 00
Best flax linen cloth, Mrs. Elihu Coffin, Thorntown 1 00

2d best, Mrs. Charles Dungan, Johnson county.....diploma.
Fancy leather work, Mrs Francis King, Marion county.....diploma.
Straw carpet, Mrs C. Richards, Morgan county..... diploma.
Linen shirts, Mrs. W H. Horton, Lafayette.....diploma.
Collars, Ward & Clagstone, Lewisville, Indiana.....diploma.
Lady's Cape, Mrs. T. A. McCollum, Lafayette.....diploma.
Woolen knit gloves, Mrs. A. W. Webb, Marion county.....diploma.
Home made vest, Mrs A. W. Webb, Marion county.....diploma.
Needle-book, Mrs. M. Pendleton, Marion county.....diploma.
Lady's collar, Mary Cooper, Indianapolis.....diploma.
Embroidered skirt, Martha Lowry, Marion county.....diploma.
Baby dresses, Mrs. Thomas Blain, Delphi.....diploma.
Baby's cap, Mrs. W. Mansur.....diploma.
Best silk embroidery, Miss S. M. Baker, Lafayette.....diploma and $1 00
2d best, Mrs John Bradshaw, Indianapolis.....diploma.
Bead work, Miss Rebecca Fry, Marion county.....diploma.
Knit caps, Mrs W. Mansur, Indianapolis.....diploma.
Knit lace, Mrs. W. Mansur, Indianapolis.....diploma.
Woolen knit socks, Mrs. D. Allen, Indianapolis.....diploma.
Bleached linen sheet, Mrs A. Black, Hancock county.....diploma.
Bureau cover, Mrs. James Skillen, Indianapolis.....diploma.
Linen socks, Mrs. A. W Webb, Marion county.....diploma.
Best silk bonnets, Mrs. Thomas, Indianapolis.....diploma and $1 00
2d best, Miss Cannon, Indianapolis.....diploma and 1 00
Satin bonnets, Mrs. Woolman, Richmond.....diploma.
Velvet bonnet, Mrs. M. J. Thomas, Indianapolis.....diploma.
Straw bonnet, Mrs. Woolman, Richmond.....diploma.
B. G. A. bonnet, Mrs. Woolman, Richmond.....diploma.
Cotton knit socks, Mrs. A. W. Webb, Marion county.....diploma.
Child's dress and cloak, J. K. Wheelan & Gilligan, Indianapolis.....diploma.
Velvet cloak, J. K. Wheelan & Gilligan, Indianapolis.....diploma.
Child's hat, J. K. Wheelan & Gilligan, Indianapolis.....diploma.
Silk mits, Samuel Vance, Henry county.....diploma.
Silk stockings, Samuel Vance, Henry county.....diploma.
Stand cover, Lizzie Blachard, Delaware county.....diploma.
Linen table cloth, Mrs. F. Brenneman, Marion county.....diploma.
Lady's collar and undersleeves, Mrs. O. P. Ludlow, Indianapolis.....diploma.
Muffetens, Miss A. Williams, Delaware county.....diploma.
Counterpane, Miss Margaret J. Coombs, Clarke county.....diploma.
Crochet lace, Ursula F. Carver, Fayette county.....diploma.
Crape work, Miss S. M. Baker, Lafayette.....diploma.
Child's hat or bonnet, Mrs Margaret Eaglesfield, Indianapolis.....diploma.
Work basket, Catharine Stump, Indianapolis.....diploma.
Imitation moss worsted basket, Miss M. A. Brown, Indianapolis.....diploma.
Silk work, (toilet cushions), Miss S. M. Baker, Lafayette.....diploma.
Linen towels, Eliza Brenneman, Marion county.....diploma.

MISCELLANEOUS ARTICLES.

GENERAL DIVISION.

Tomato catsup, entered by Asher Cox, Marion county, Indiana; two cans peaches in alcohol, by same. Diploma and $2.

Butler's fluid ink, J. J. Butler, Cincinnati, O. Diploma.

Butler & Parr's writing fluid, W. H. Butler & Parr, Cincinnati, O. Diploma.

Three specimens of fancy painting, by Jacob Cox, Indianapolis. Diploma and $10.

Meat cutter, Birkenmeyer & Brewster, Indianapolis; sausage stuffer by same; window washer by same. $3.

Knife sharpener, A. M. Truesdell, Indianapolis.

Portable soda fountain, assortment of syrups, assortment of soda water; Alex. Frankenberg, Columbus, O. Diploma and $2.

French's patent boot jack, F. S. Lamson, Mass.

Medicated hair tonic; Shampooing liquid, G. W. Canada, Madison, Ind. Diploma and $3.

Pear butter, Miss Letitia Moore, Marion county, Ind. Diploma and $2.

Bunch of tissue work, Miss Sarah Swinehart, Indianapolis. Diploma and $2

Pair of fowls, cross of bramah pootra and shanghai, G. Standard, Attica, Ind. Diploma and $3.

Writing ink, indelible ink, Chester S. Gould, Wayne county, Ind. Diploma and $3.

Card writing, card pencils, T. J. Bryant, Indianapolis. Diploma and $2.

Pear preserves, apple preserves, maple molasses, tomato preserves, melon preserves, grape preserves, Siberian crab preserves, cherry preserves, pear butter, pumpkin butter, greatest display of jelly, elder berry jelly, plum jelly, grape jelly, apple butter, starch, dried apples. For these manifold evidences of industry, good taste, and good housewifery, the committee award Mrs. Harrison H. Hall, of Rush county, Indiana, a premium of a diploma and $10.

Map of Marion county, by Condit, Wright & Hayden. Diploma and $5.

Sweet pickled peaches, Mrs. J. B. Maghee, Evansville. Diploma and $2.

Worked pillow cases, Mrs. Harrison H. Hall, Rush county, Ind; wax candle by same. $2.

Specimen of stencil cutting, Nathaniel Cox, Indianapolis. Diploma and $2.

Tomato catsup, by same. $1.

Specimen of copperplate and wood engraving, by T B. Perine, Indianapolis. Diploma and $5.

Comfort, made by Miss Mary Caldwell of Rush county, under eight years of age. Diploma and $2.

Eye cups, by Dr. J. D. Moore, Occulist, Cincinnati, O. Diploma.

Cage of parrots, D. C. Duval, Indianapolis.

Cologne water, hair regenerator, and extract of Jamaica Ginger, W. W. Roberts, Indianapolis. $3.

Hair wreath bracelet, Mrs. V. C. Hanna, Indianapolis. $2.

Grape jelly, by Miss Mary A. Hammond. Diploma and $2.

Bride's head dresses, by Mrs. J. G. Weeks, Indianapolis. These beautiful articles were gazed at with longing eyes by

"Maidens fair,
Of dimpled cheeks and auburn hair,"

And are awarded a premium of a diploma and $3.

Hair wreath, Mrs. J. L. Day, Indianapolis. $2.

Crab jelly, J. M. Hubbard, Indianapolis. $2.

Best variety of fowls, O. M. Bartlow, Brookville, Ind. A very excellent variety of the common fowl. Diploma and $3.

Cage of canary birds, J. S. Watson, Indianapolis. Sweet musicians—a happy family in miniature. Diploma and $3.

Box of coxcombs, Mrs. John Bigelow, Indianapolis.

Apple butter, tomato jelly, Mrs. Jacob Loucks, Marion county, Ind. Diploma and $3.

Cage of squirrels, James George, Indianapolis. $2.

Fly brush, John Cassaday, Connersville, Ind. A beautiful article. $2.

Stuffed white squirrel, J. H. Mannaugh, Clarke county. $2.

Catawba wine, Jno. M. Cooper, Clarke county, Ind. A fair article. $3.

Pear preserves, pepper pickles, and crab apple jelly, Mrs. E. W. Neff, Indianapolis. Diploma and $3.

Spirometer, E. P. Moulton, Indianapolis.

Quince Jelly, fresh peaches, canned, Mrs. E. Newland, Washington county, Ind. Very superior articles, especially the jelly. Diploma and $3.

Preserved water melon rind, preserved musk melon, preserved citron, preserved raisins, preserved wine grapes, preserved winter grapes, preserved tomatoes, preserved English ground cherry, preserved green apples, preserved wild crab apples, preserved Siberian crab apples, preserved currants, preserved pears, preserved figs, and preserved dried apples, Pamelia Woods, of Marion county, Ind. These preserves were in an excellent condition of preservation, and the committee take pleasure in awarding the preserves a premium of ten dollars

and a diploma, in the hope that other housewives may be induced to go and preserve likewise. May she be preserved forever!

Specimens of stationery, Wm. Stewart, Indianapolis. $2.

Grape jelly, Letitia Moore, Marion county. Diploma and $2.

Silk gloves, Sarah Shilleday, Hendricks county, Ind. $2.

Dozen brooms, W. C. Larrabee, for pupils of Blind Asylum. Superior workmanship and material. $5.

Case of brushes, by same. Diploma and $5.

Case of bead work, by the lady pupils of the Blind Asylum. Beautiful specimens of workmanship. Diploma and $10.

Foot mat for same. $2.

Monument of Italian marble, H. C. Woodward, Indianapolis. An admirable specimen of art. Diploma and $5.

Case of chemicals and perfumery, J. Rosenthal, Indianapolis. Diploma and $5.

Plum jelly, pickled beets, pickled eggs, pickled mangoes, mango pepper, common pepper, and pickled Missouri cucumbers, Wm. B. Doty, Randolph county, Ind. Diploma and $4.

Pickled peaches, Samuel Vance, Henry county, Ind. A very fine article. Diploma and $2.

Catawba wine, Jacob Straub, Marion county, Indiana. The specimen *looked* excellently well. Diploma and $3.

Cage of five rabbits, by same. $2.

Tippets, manufactured from anser down, by Miss Alice Williams, of Delaware county. These articles were much admired for their beauty, and are very creditable specimens of skill and taste. Diploma and $5.

Cucumber catsup, strawberry jelly, gooseberry jelly, sealed raspberries, currant vinegar, tomato catsup, peas preserved without sugar, pepper sauce, cucumber pickles, and tomato mangoes, Miss Alice Williams, Delaware county. All excellent articles. Diploma and $5.

Needle book, Mrs. H. H. Field, Indianapolis. Very neat and pretty. Diploma and $2.

Basket of leather work, by Mrs. C. N. Todd, Indianapolis. A beautiful article. Diploma and $2.

Satin dress, Francis M. Black. The committee could have judged better of this article with a live woman inside of it. Diploma and $3.

Ornamental card printing, Andrew Bidwell & Bro., Indianapolis. Very superior specimens of the art preservative of all arts. Diploma and $3.

Perfumery, pharmaceutical preparations, and lot of brushes, Robert Browning, Indianapolis. Diploma and $5.

Card writing, A. F. Baker, Indianapolis. Diploma and $2.

Tomato catsup, and lamp mat, Mrs. A. M. Hunt, Indianapolis. Diploma and $2.

Picture frame, Margaret Rice, Vigo county. Diploma and $2.

Oval turned picture frames, J. R. Osgood & Co., Indianapolis. $2.

Tomato butter, variety of jelly, and peach butter, John M. Thomas, Hancock county, Ind. Diploma and $3.

Pear preserves, Martha Nash, Indianapolis. Diploma and $2.

Table manna, M. Butterfield, Indianapolis. $2.

Fancy hair work, Mrs. J. T. Williams, Indianapolis. Diploma and $3.

Tomato catsup, and apple molasses, Mrs. G. F. McGinnis, Indianapolis. Diploma and $2.

Silk basque, Miss A. G. Keasley, Indianapolis. Diploma and $3.

Erasive soap, O. D. Hamilton, Rochester, N. Y. Diploma.

Door mat, J. & J. Bradshaw, Indianapolis. Diploma and $1.

Rifle gun, David Pence, Columbus, Ind. Diploma and $3.

Flower stands, imitation of papier mache, Mrs. Francis King, Indianapolis.

Cooked tomatoes, raw tomatoes in sealed jars, tomato catsup and cucumber catsup, Miss M. A. Brown, Indianapolis. Diploma and $2.

Peruvian ducks, Joshua Dye, Wayne co.

Pair of white shanghais, by the same. Diploma and $3.

10 yards linsey, Mrs. John M. Thomas, Hancock county, Ind. Diploma and $3.

Process for drawing and sketching, by O. M. Babcock, Lorain county, O.

Chinese or golden fish, M. R. Hull, Wayne county, Ind. Diploma and $2.

Specimen of penmanship, business card, J. G. Weeks, Indianapolis. Diploma and $2.

Specimens of books, Noyes Spicer, Indianapolis. $2.

Pocket revolving calendar, H. B. Evans, Fayette county, Ind. Diploma and $1.

Peaches in brandy, Mrs. O. P. Ludlow, Laporte, Ind. Diploma and $1.

Variety of preserved fruits, and cucumber pickles, Mrs. Dr. G. B. Walker, of Evansville.

Hoosier figs from native persimons, Dr. J. H. Bowers, Ripley county, Ind. Diploma and $2.

Kedzie's rain water filter, Birkenmeyer & Brewster, Indianapolis. Diploma and $3.

Painted fire board, Miss McKee, Madison. Diploma and $3.

Cordage machine, Geo. Stevenson, Boone county, Ind. This has the appearance of being a very important and useful invention. The specimens of cotton cordage, made on the fair grounds, were very satisfactory. Diploma and $5.

Otis' improved lightning conductor. The peculiarity of these conductors, is in the mode of insulation; ensuring entire protection to the building, and the lateral safety points admitting a discharge of the electric fluid before reaching the ground. Diploma and $3.

Hutchinson's potato planter, patented by Samuel Hutchinson of Rockport, Ind. The machine is an ingenious invention, and worthy of trial. Diploma and $3.

MECHANICAL AND MANUFACTURED ARTICLES.

Machinists' and blacksmiths' drill, Thomas Newby, Richmond, Ind. This is a self-feeding and self adjusting drill, invented and manufactured in the State, and should be brought into general use. Diploma and $5.

Halliday's self regulating wind mill, Frederick Franks, South Coventry, Conn. This mill possesses the advantages of a self-regulator, so as to throw the edge or broadside of the wings to the wind, and will run at the same speed in a storm or gentle breeze. Diploma.

Self-regulating wind mill, James Harrington, Richmond, Ind. An excellent mill. Diploma and $5.

Lot of cigars, J. A. Heidlinger, Indianapolis. These looked very pretty and good, but as the committee had not the liberty of a practical puff, they cannot as fully as they would desire, puff them on paper. They looked well, and would doubtless smoke well. Diploma for their good looks.

Case of silver ware, E. J. Baldwin & Co., Indianapolis. Diploma and $5.

Model locomotive, Abijah Taylor, Indianapolis. The committee cannot express an opinion from a mere model. A practical test is necessary. Diploma.

Portable grist mill, Moore Holden's patent, J. T. Wilder, Lawrenceburgh, Ind. Diploma and $5.

Dress for mill stones, Moore Holden's patent. These inventions of Moore Holden have attracted much attention, and are rapidly coming into general use. As the inventions of an Indiana mechanic, we commend them to the patronage of the public. The dress for mill saws received a diploma at the State fair of 1852, and it was worthily bestowed.

Double bass viol, Henry Colestock, Indianapolis. A fine toned, handsome instrument. Diploma and $3.

India rubber goods, Ward Clagstone, Cincinnati, Ohio. A fine exhibition of serviceable goods, deserving general patronage. Diploma.

Talbottyping, (business cards), Samuel Hyman, Indianapolis. The committee have but little knowledge of this art, but commend the specimens for their neatness. Diploma.

10 yards cassinet, Jesse Yount, Indianapolis. Serviceable and well made goods. Diploma and $3.

Collection of horticultural tools, Birkenmeyer & Brewster. A fine collection, but not manufactured in the State.

Horse collar block, Peter Moody, Indianapolis. A good thing. Diploma and $5.

Best arrangement for replacing railroad cars, F. L. Bailey, Freeport, Shelby county, Ind The committee regard this as worthy a trial. Diploma and $3.

Rustic chair, S. Swindell, Indianapolis. Diploma.

Patent improvement on mill saws, improvement in hanging mill saws, and improvement in saw gummers, N. T. Coffin & Co., Indianapolis. These are regarded as valuable inventions. Diploma and $3.

Specimens of book ruling, Delzell & Tyler. Very superior specimens of work. Diploma and $5.

Specimen of law binding, Delzell & Tyler. The best style of the art. Diploma.

Cold lard lamp, A. J. Allen, Indianapolis. The committee hope, for the benefit of mankind, that this article is an improvement on its predecessors, and that the people who live in darkness, may yet "see a great light!" Diploma.

Hand fire engine, Charles A. Schmidt, Indianapolis. For a small affair, the committee found it capable of a tremendous squirt, and recommend it for trial. Diploma.

China ware, and plated goods, S. L. Campbell, New Albany. Diploma and $5.

Wrought iron panel door and shutter, Williamson & Haugh, Indianapolis. A good specimen of smith work, and deserving of notice. Diploma and $2.

Coal furnace for heating houses, R. L. & A. W. McOuat, Indianapolis. Diploma.

Wood furnace, by same. Diploma.

Hat rack, by same. Diploma.

International stove, by same. Diploma and $5.

St. Louis extension post bedstead, J. M. & A. L. Tilford, Indianapolis. Diploma.

Reception chairs, by same. Diploma and $2.

Venetian blinds, Jacob Barr, Indianapolis. Very neat articles, well manufactured. Diploma and $3.

Flour, shorts and bran, proceeds of 10 bushels of wheat, L. B. Morrison, Cambridge City, Ind. Several very fine specimens of flour were presented the committee in competition for the premium, but the above mentioned lot was considered entitled to the premium Diploma and $5.

Saddles and bridle, Thomas Thistlewaite, Connersville, Indiana, very neat and well made. Diploma and $3

Boston box stove for wood, by Brown, Lockwood & Brown, Dayton, Ohio. Diploma.

Pleasure, sleigh, (single seat,) Bagley & Rose, Laporte. Neatly and substantially made, and very handsomely finished—in every respect superior to anything ever exhibited in the State. Diploma and $5.

Felton's portable grist-mill, H. T. Lawton, Indianapolis The advantages claimed for this mill are, the extreme simplicity of working, economy of power, durability, and general usefulness to the farmer for all the purposes of preparing food for stock, and for family use. Diploma.

Revolving screw plate, H. T. Lawton, Indianapolis. Diploma and $3.

Steam boiler and sheet iron chimney, Dumont & Co., Indianapolis. Diploma and $5.

Two pair of ox bows, Levi Comegys, Indianapolis, a good article. Diploma and $2.

Lady's sewing chair, J. F. Ramsey, Indianapolis. A novelty, plain, cheap, comfortable. Diploma and $2.

Compound railroad bar, W. J. Holman, Indianapolis, an invention worthy of trial. Diploma.

Counter scales, (Fairbanks), Browning and Meyer, Indianapolis. Diploma.

Paging machine for books, Sheets & Braden, Indianapolis. This is a most ingenious, labor saving machine for paging blank books. Diploma and $3.

Bran duster, George P. Stevens, Indianapolis. Diploma.

Buckwheat flour, Samuel J. Patterson, Indianapolis, an excellent sample, and a good thing for the inner man. Diploma and $2.

Conversation chair, John Ott, Indianapolis, very neat and sociable looking. Diploma and $3

Divan, John Ott, Indianapolis, very neat and beautifully finished. $3.

Buckwheat flour, D. S. Waggoner, Penn Yan, N. Y. Diploma and $2.

Improved mode of hanging reciprocating mill saws, O. S. Woodcock, Connersville. Probably good, but needs to be practically tested. Diploma.

Two saddles and bridle, John Cassady, Connersville. The best article on the ground. Diploma and $5.

Two saddles, Franklin Warren, Greensburgh, Ind, very good. Diploma and $2.

Patent expanding collar block, F. T. Graham, Crawfordsville Diploma.

Sulky, Charles Veach, Connersville, Ind. A fine article—the iron work was done by a boy of eighteen, who has wrought but two years at the trade. Diploma and $5.

Child's carriage, C. K. Myers, Franklin, Ind Very neat and tasty, but rather expensive. Diploma and $3

F. Coen's patent bench vice, O. W Shearer, Indianapolis Very good! Diploma and $1.

Bushel of corn meal, Joseph Schofield, Marion county, Ind. A very superior article. Diploma and $2.

Burial hearse, L. Snyder, Indianapolis. Manufactured by Gaston, very handsomely constructed and neatly finished. Diploma and $3.

Hollow ware for cooking stoves, Brown, Lockwood & Brown, Dayton, Ohio Diploma.

Willow ware, Wroughton & Perkins, Clarke county, Ind. The willow was raised and the ware manufactured in Clarke county. The importance of fostering this enterprise must be apparent to all. Diploma and $5.

Dickey's patent mill step, D. Trotter, Montgomery county, Ind. Good. Diploma.

Improvement in bullet moulds, Barnes & Sidan, Greensburgh, Ind. A Hoosier production, and a good article. Diploma and $3.

Portable staging, W. P. Goodman, Hendricks county, Ind A highly deserving invention. Diploma and $3.

Barrel of flour, Boyd & McLucas, Wayne county, Ind. Diploma and $2.

Taylor's steam engine, D Trotter, Montgomery county, Ind. A mere model—committee are unable to determine its value, but think it worthy a trial. Diploma

Pair of blankets, J. W. L. Matlock, Hendricks county, Ind. Very fine workmanship. Diploma and $5.

Flour packer, Jacob Shuey, Dayton, Ohio. A valuable improvement. Diploma.

Axe helves, Wm. Doty, Hendricks county, Ind. A good article. Diploma and $2.

Dynamometer, Beard & Sinex, Indianapolis and Richmond. Diploma

Hat rack, J. F. Ramsey. Indianapolis. A neat article, deserving notice. $2.

Basket stand, J. F Ramsey, Indianapolis. $2.

Copper lightning rod, Munson & Brother, Indianapolis. This article is spoken of in high terms, but the committee cannot determine as to its value. $2

Miniature chairs, Jesse O'Neal, a blind man. These chairs are cut from a solid block of wood, except the rockers. $2.

Lake Huron grindstone, J. B. Johnson, Cleveland, Ohio. A superior article. Diploma.

Boring machine, W. J. Gardner, Indianapolis. This machine is claimed to possess several advantages over other machines; the cranks are so placed as to enable the operator to exert the power of his arms continuously. Diploma and $3.

Pump tools, F. Cassatt, Indianapolis. Very good. $2.

Side saddle, J. B. Woods, Shelbyville, Ind A very fair article. $2.

Spokes and axe handles, J. W. French & Co., Three Rivers, Michigan. Diploma.

Bent plow handles, bent buggy shafts, bent carriage poles, bent buggy bows, bent buggy and wagon felloes, machine morticed buggy and wagon hubs, buggy hubs, log wagon hubs, turned carriage neck yoke, turned carriage singletrees, turned buggy spokes, best turning buggy seat sticks, J. R. Osgood & Co., Indianapolis. Diploma and $5.

Broom handles, one set machine cut staves, four sets lasts, set boot trees, one set spring clamps, one set common clamps and crimps, one set crimps with patent irons, machine stretched oak tanned leather belting, one dozen lace leather, specimen of best sawing, Osgood & Smith, Indianapolis. These specimens of wood-work are highly creditable to the enterprising manufacturers, and should be liberally encouraged. Diploma and $5.

Platform spring wagon, a light, substantial, roomy and convenient wagon; break wagon, the style and workmanship are highly recommended; sulky, very handsomely made, and neatly finished—light, but substantial; phaeton, a very fine article, neatly made, and gotton up in good taste. These articles are all from the shop of H R. Gaston, Indianapolis, and are very creditable specimens of work. Diploma and $10.

Car wheel, R. R. Underhill & Co., Indianapolis. The committee are of opinion that this wheel is a valuable improvement, and commend it to the special attention of Railroad Companies. Diploma.

Laundry stove, Swindell & Co., Indianapolis. Cheap, economical, and convenient—the housewife's delight! Diploma.

Carriage whips Samuel Porch, Henry county, Ind. "These are made of white oak wood. In the first cut, near the heart, there is a small strip of wood, which contains a large amount of the oil of the wood, which makes it elastic and tenacious. The strip must be taken out with the grain and not crosswise, and afterwards straightened." Commended as a good article. Diploma and $3.

Locomotive truck, John L. White, Indianapolis. Worthy of a trial by the railroad public. Diploma.

Small riveting hammer, set bench planes, improved plough plane, smoothing plane, set panel guages, David Pence, Columbus, Ind. Diploma and $5.

Warm air and ventilating furnace, R. A. Kerfoot, Dayton, Ohio. Diploma.

Portable conical burr stone mill, portable bolt, John M. Cook, Geneva, Ashtabula county, Ohio. Diploma and $3.

Silver tray, pitcher and goblet, W. J. Elliott, Indianapolis, manufactured by W. H. Talbott, Indianapolis. Diploma.

Model for flour bolt, patented by Conner & Mendenhall, Richmond, Ind. This is claimed by the inventors as a valuable improvement. Diploma.

Circular sawing machine, J. M. Hutton, Richmond, Ind. This machine is designed to saw the edge and side of boards at the same time, by a perpendicular, and a horizontal saw, taking the board directly from the log. It saws broom handles and all small articles equally well. Invented and made in Wayne county, Ind. Diploma and silver cup.

One piano, Willard, Stowell & Willard, Indianapolis. Diploma and $5.

Melodeon, from same. Diploma.

Manifold elector lightning conductor, S. D. Cushman, Racine, Wisconsin. An invention worthy of trial and possessing manifold advantages over the article in common use. Diploma and $3.

Model of lightning conductor, L. B. Page, Springfield, Ohio. Diploma and $3.

Stove and lantern combined, L. B. Page, Springfield, Ohio. Diploma.

Lamp for lard oil, John W. Hitt, Mt. Morris, Ogle county, Ill. Diploma.

Goodwin's center vent water wheel, O. P. Arnold, Mishawaka, Ind. This wheel is rapidly coming into use, and is commended for simplicity of construction, durability and economy of water. Diploma and $3.

Boston box stove, Nos. 6 and 4 for wood, Brown, Lockwood & Brown, Dayton, Ohio. Diploma.

Set of artificial teeth, J. S. Fosdick, Laporte. A very good article. Diploma and $3.

Model for hay press, P. Maury, Wadham's Grove, Stevenson county, Ill. A good article, and commended to general attention. Diploma and $3.

Iron bedstead, not found.

Burglar alarm, David J. Grave, Monrovia, Morgan county, Ind. Diploma and $3.

Dress for mill stones, Wm. Finkle, Fountain county, Ind. A mere model, but regarded as an improvement. Diploma.

Offal mill and friction bolt, L. S. Reynolds, Indianapolis. An ingenious invention, and promises to be of practical utility. Diploma and $5.

By Asher Cox, of Marion county, some fine varieties of inoculated peach trees one year's growth. Diploma and $3.

Model mowing machine, for a wrought iron mower, from Westville, Laporte county, Ind. Diploma and $2.

Agricultural furnace, S. Swindell & Co., Indianapolis. Diploma and $3.

Agricultural library, L. H. Hare, Indianapolis. Diploma and $5.

Wire and picket fence, J. B. Reyman, Dubuque, Iowa. Silver cup $10, and diploma.

No mere description can give a just idea of the ingenuity, beauty, and utility of the above invention. It must be seen to be appreciated in all its points. When we consider the enormous amount of capital invested in fencing, we wonder there has been no inventions to cheapen and improve. It will not, probably, be too high an estimate to say that one-half of the capital of the State of Indiana is invested in fencing. Some rods of it were erected on the ground, and had every appearance of being as substantial and useful as any other fence. It is proof against breachy cattle hogs, pigs, sheep and even poultry—making a perfect fence with the least amount of material. A mile of the fence, (posts excepted), can be shipped on one railroad car, and four two-horse teams can haul it to any point on the prairies. The fence is constructed with posts a rod apart; two longitudinal strips of lathing for rails; pickets the size of lathing interwoven by three wires—no nails used. It will cost from 140 to 200 dollars per mile, according to the strength required. The following is an estimate of one mile of the best quality:

321 posts, bored and with pins for fastening wires, at 14 cents each	$44 94
500 pounds wire, at 10 cents	50 00
12,000 pickets, at $5 per thousand	60 00
1,920 rails, at 1 cent each	19 20
Putting up the fence, four men five days	20 00
Total cost	$194 14

Rice corn, Fielding Beeler, Marion county. Diploma and $1.

Egyptian wheat, Fielding Beeler, Marion county. Diploma.

Straw cutter, Birkenmeyer & Brewster, Indianapolis. Diploma and $5.

Clover and timothy seed sower, Birkenmeyer & Brewster, Indianapolis. Diploma and $3.

Farm hames, Birkenmeyer & Brewster, Indianapolis. Diploma.

Hand corn sheller, Birkenmeyer & Brewster, Indianapolis. Diploma and $3.

Power corn sheller, Birkenmeyer & Brewster, Indianapolis. Diploma and $5.

Thresher and separator, Wm McClure, Ripley, Brown co, Ohio. Diploma and $8.

One-horse plow, Beard & Sinex, Indianapolis and Richmond. Diploma and $2.

Peach tree, (largest growth in one year from innoculation), John Mason, Indianapolis. $2.

This was a fine, thrifty tree, about five feet growth in one year.

American arbor vitæ, John Mason, Indianapolis. $2.

English cedar, raised from seed, John Mason, Indianapolis. $2.

Balsam fir, John Mason, Indianapolis. $2

Orange tree, John Mason, Indianapolis. $3.

Bearing fig tree, John Mason, Indianapolis. Diploma and $1.

Honey knives, Chester S. Gould, Wayne county. Diploma and $1.

Jerusalem cherry tree, Frederick Snyder, Marion county. Diploma and $1.

Van Horn's improved iron cultivator, Gray & German, Jacksontown, Ohio Diploma and $8.

Perkins & Bishop's stalk machine, Hiram Smith, Norwalk, Ohio. Diploma and $5.

This is the finest thing of the kind we have ever seen. We saw it work, and it performed beautifully, doing all it claims to do.

Premium ditching spade, Wilson & Lamb, Richmond. Diploma and $1.

Bishop's patent cultivator, L. Bishop, Norwalk, Ohio. Diploma and $5.

Bough of apples, John Mason, Indianapolis. Diploma and $1.

Seed planter, J. J. Jones, Indianapolis Diploma and $1.

Grain separator, A. B. Childs, Indianapolis. Diploma, $10 cup, and $5.

One of these machines was in operation at Carlisle's mill; we saw it work, and it performs admirably.

Two-horse cultivator, John Immel, Union co., Ind. Diploma and $5.

Fruit gatherer, Joseph M. Hillis, Putnam county. Diploma and $1.

Combined shovel plow and cultivator, G. A. Spideler, Logansport. Diploma and $5.

Half bushel white beans, Edward Thomas, Marion county. Diploma and $1.

Cultivator, S. Horney & Co., Richmond. Diploma and $3.

Corn plow, S. Horney & Co., Richmond. Diploma and $5.

Machine for loading hay from the winrow, Kinney & Tarlox, Switzerland county. Diploma, $10 cup, and $5.

This machine attracted as much attention as anything on the ground, and deservedly so. It is something entirely new, and destined to supercede the pitchfork in loading hay.

Best 12 heads of rice corn, Samuel W. Schofield, Marion county. Diploma and $1.

Best Osage orange plants, for hedging, R. G. Hubbard, Marion county. Diploma and $4.

Best plow for Osage orange plants, R. G. Hubbard, Marion county. Diploma and $2.

Best 40 rods Osage orange hedge, R. G. Hubbard, Marion county. Diploma and $3.

Best plan and specifications for barn, Oliver Albertson, Washington county. Diploma and $1.

Wheat and barley drill, C. P. Tharp, Knightstown. Diploma and $5.

Cider mill, William Albright, Knightstown. Diploma and $3.

Clover huller and separator, Joseph Allen, Starke county, Ohio. Diploma and $3.

Indiana reaper, R. M. Remy, Hope, Ind. Diploma and $1.

Combined harrow roller, grain and grass seed planter, David Hill, Harrisville, Randolph county, Ind. Diploma and $8.

This is a very useful and desirable machine, and a Hoosier invention.

Clover huller, Loomis & Fitch, Greenwood, Johnson county. Diploma and $5.

Two cultivators, harrow, two shovel plows pair of thribble trees, corn plow, and two-horse cultivator, Gause & Webb, Indianapolis. Diploma and $10.

Dynometer for testing the draft of plows, Hall & Speer, Pittsburgh, Pa. Diploma and $4.

Three-horse double-tree, Rapp & Ott, Indianapolis Diploma and $1

Thresher and separator, Emery & Brothers, Albany, New York. Diploma and $15

We had the pleasure of seeing this machine work. It did its work clean, thorough, and rapid.

Corn harvester, H. E. Wilson, Indianapolis. Diploma, $10 cup, and $5.

This is a valuable machine, used for cutting up corn in the field and depositing in bunches, drawn by two horses, and taking two rows of corn at a time.

Double corn plow, L. Sloman & Co., Gerard, Macoupin county, Ill. Diploma and $5.

Yearling mule, John Southerland, Marion county. Diploma and $3.

This was a very large animal for its age—about 16 hands high.

Best specimen of Osage orange fruit, James Hammond, Wayne county. Diploma and $1.

Clover huller and separator, A. B. Crawford, Piqua, Ohio. Diploma and $5.

Samples of dressed flax, G. W. Sessons, Painesville, Ohio. Diploma and $1.

Two year old mule, Wm. McKenzie, Marion county. Diploma and $2.

Danforth & Co 's mower and reaper, E. Danforth, Geneva, Kane co., Ill Diploma and $5.

Plow for top cultivation, iron gang plows, C. L. Sheekels, N. Y. Diploma and $5.

Water wheel, J. T. Wilder, Lawrenceburgh, Ind. Diploma and $5.

MISCELLANEOUS REPORTS.

REPORT OF COMMITTEE ON PLOWS AND PLOWING MATCH.

The committee upon plows and the plowing match, in obedience to the requirements defining their duties, did proceed immediately after being filled up, to an examination of the plows on exhibition. They found fifty in number, which for workmanship and material, your committee would call them all good; and had your committee consulted their own feelings, apart from the instructions from your board, they would have awarded to each competitor a premium; but not having such discretionary power, your committee had to decide who should bear off the palm—and after having examined the plows on the ground, your committee understood it as a part of their duty that they see the plows work; they accordingly informed the exhibitors that 9 o'clock this day they should have their teams in readiness to try their plows. Nine o'clock came, and with it came the plows and the teams, and after a careful trial, your committee followed as nearly as they could their instructions, guided by an instrument that was intended to determine the amount of draft. They first tried the plows for clay soil, and here, as a matter of curiosity, they would say, that the draft indicated in the opening furrow in this class, which they tried, one by one, ranged from 1000 lbs. down to 750 lbs. The average of the test furrow, being the third round, was about 475 lbs. There were ten that plowed, and your committee must say, that the plows and the plowing were of the very best kind, and as we have before intimated, if we had been authorized to give discretionary premiums, we should give one to each plow; but a decision had to be made, and your committee, not without even distrusting their own judgment, awarded to No 10.

Next in order was the plows for light sandy soil. In this class we dispensed with the instrument, as we had but one, for we saw plainly that we would not have time thus to particularize—an arrangement that was satifactory to the competitors, and they boldly struck off, each one laying off his own land, and plowing three rounds about twenty rods in length. In this class there were seven plowed; and in this class as in the other, the contest was so close that your committee, after the exercise of their closest powers of discrimination, were much puzzled to decide, but there was no alternative, they therefore did award to No. 13.

Next in order on your list, was the prairie plows. These we did not take to the

field—there were ten entries in this class, all of which done the manufacturers much credit, and all looked as though they would work well. They award to No. 3 in this class the premium.

Next comes the sward plow. There were seventeen entries in this class, seven of which were tried on the field, and to say the plows were good, and the work they done good, was expressing very feebly their merits, nor would the superlative *best* hardly express their qualities as to material, workmanship, and the work they done, but the award must be made, and we gave it to No. 1.

Two hill side plow entries were made, both of one pattern, and the only point in this case was the workmanship. They award to No. 2 the premium, and diploma to No. 1. This plow your committee think well adapted to the wants of the farmer who has hill side land to plow. The ease with which it is adjusted, its capacity for strength and durability, makes it a desideratum long sought for by the hill side farmer.

The next and last your committee passed upon, was the subsoil plow. In this class there were seven entries, all of which done their work well, and a kind of a plow we cannot recommend too strongly to the farmer who has a clay subsoil farm, as they are calculated to open the lands below and form a partial drain for the water, and thereby keep the upper surface dry. Your committee award to No. 2 in this class. Price, $6.

Thus have your committee passed over the plows, (a day's labor they will never forget,) and the remarks they have to make upon them. To the competitors, we say, all praise is due for the open and manly forbearance toward the committee, and toward each other. All of which is respectfully submitted.

A. B. LINE, Frankin county,
THOS. DURHAM, Vigo county,
T. BAKER, Marion county,
JUDGE R. ELLIOTT, Jennings county,
W. H. STONE, Switzerland county,
} *Committee.*

EXTRACT FROM THE REPORT OF THE COMMITTEE ON HOGS.

Your committee regard it their duty to the exhibitors in this class, to express their admiration of the hogs exhibited. These were *one hundred and sixteen* in all, and uniformly good; of the best breeds, and showing high improvement by judicious crossing. To aid the people of the State in making greater improvement yet, the committee have made special inquiries of the breeds, their crosses, and the results obtained.

It will be seen that nearly all those that have received premiums have the *Poland* blood. The sow receiving the first premium is full blood, and the one receiving the second, nearly so. The excellence of this breed is in having good size and corresponding bone, of uniform development of all their parts, of good tendency to fatten, and prolific as breeders. But their ear is not good and head rather large, but for their size have little useless offal.

The Leicester breed have good size, a fine head and ear, heavy shoulders, fine fattening qualities, but are too light in the ham, and have not hair enough for our extreme heats in summer. They also are prolific A cross of these it is believed, will improve the Poland in the ear and head, increase the tendency to fatten, without impairing the ham. Your committee come to this conclusion from having on exhibition a sow of the Leicester and Byefield cross, and a boar of the Leicester and some other unknown breed, both of which are not deficient in the ham. But to what extent this cross will be successful, the State Board at the next State Fair can determine. The Poland sow receiving the first premium being with pig to Mr. Stevenson's imported Leicester boar.

The *Suffolk* breed is superior to all others in the fattening quality, but deficient in size for the purposes to which pork is applied in our State, and is not prolific. A cross of this, upon the former it is believed may result in increasing the fattening quality, and still further improving the ear and head, without injuring the size. The committee would infer this from the cross exhibited of a Suffolk boar with the Leicester and Byefield sow, above referred to; the pigs under six months old having received the first premium. Their proportions are admirable, with the highest fattening quality and give promise of good size. Whether they will be prolific is a question that cannot now be determined.

The Polands and Grazier is an excellent cross, as also the Poland, Russia and Chester White, but the proportions of each of these bloods in the animals exhibted, the committee had no means of determining. Breeders of hogs ought to keep a record of their crosses, for such record will hereafter aid much in arriving at definite conclusions. A two year old boar of the Poland and Russia cross, exhibited by John Fosher of Union county, is deserving of an especial notice, although it failed to take a premium. Indeed, in every case, where the Poland blood was the base of the cross, the hog was good.

The committee cannot conclude their report without adverting to the family of Leicesters exhibited by A. C. Stevenson of Putnam. His importations of this stock will doubtless result in much good, by furnishing a breed by which our Poland and other breeds may be advantageously crossed.

ANDERSON JOHNSTON.

REPORT OF COMMITTEE ON USEFUL AND ORNAMENTAL ARTICLES.

Limited in time as the committee have been, and numerous as were the articles submitted to their examination, many of which approached each other very nearly in merit, it is possible that in some instances, errors may have been committed in the awards. We can, however, assure our young friends that we had every disposition, and spared no pains, to do them exact justice. Those to whom premiums have been awarded will, we trust, be stimulated to greater exertions in the future, while those, whose productions were considered less meritorious will see in this,

no cause for discouragement, but rather be urged to make greater effort, for superiority at subsequent fairs.

This part of the exhibition has been somewhat novel in its character. It is the first time we think, in this State, that a hall has been set apart exclusively for the exhibition of the productions of young ladies, and the committee cannot in justice to their young friends, withhold the expression of their satisfaction at the excellence of most of the articles exhibited. The age and sex of the competitors for premiums in this class, give to this part of the exhibition peculiar interest, and we believe that this interest will increase, so that at future fairs, the productions of the young ladies will be the center of attraction. Their efforts on this occasion show how beautifully the useful and ornamental may be combined, and that the young girls of Indiana are not behind their sisters in other and older States in those useful and ornamental accomplishments, which are so necessary to make them useful and interesting women.

But excellent as have been most of the articles exhibited by the girls on this occasion, the committee regard this as but the foreshadowing of what they will accomplish hereafter. A sentiment of delicacy has undoubtedly prevented many girls from being competitors for prizes on this occasion, but we can assure them that there is nothing indelicate in their striving for superiority in the productions of the head and hands, or claiming for that superiority, a proper public recognition. We commend to the young ladies of this State, the example of those who have been competitors for premiums at the present fair.

H. W. CULL, Chairman.

REPORT OF COMMITTEE ON FLOWERS—AMATEUR LIST.

The displays in this class were good, some of them very good; but none of them large. Those exhibited were, with rare exceptions, in fine condition, and furnished abundant evidence that the details of cultivation were well understood by the exhibitors. The floral designs were generally in excellent taste, and some of them highly ornamental. The displays belonging to the amateur list were judiciously disposed with others belonging to the professional list, in the form of a pyramid, occupying the center of Floral Hall, and formed a point of attraction probably not exceeded by anything upon the fair grounds, as was evident from the number of visitors who crowded the hall from the opening to the close of the exhibition.

The following awards were made:

For the best floral design, set of tea spoons; 2d best, Western Horticultural Review. There were four entries for these prizes, and the committee awarded the first prize to entry No. 1. The design was unique, consisting of a winged star, covered with moss and set with verbenas and other small flowers, surmounted with a richly wrought boquet. Its appearance was highly ornamental, exhibited by Mrs. Allen Loyd, of Tippecanoe county.

For the second premium, the choice lay between entries No. 2 and No. 4; the former a Gothic church, tastefully surrounded with fence, trees, and shrubbery, interspersed with flowers; and the latter, a pagoda, constructed of evergreens, the points and cornices handsomely decorated with flowers. The committee with some hesitation, awarded in favor of No. 2, exhibited by Mrs. M. Temperly, of Jefferson county, as being the most elaborate and arranged with equal taste, but scarcely more ornamental than its competitor. The pagoda is entitled to honorable mention, and was exhibited by Mrs. Margaret Eaglesfield, of Marion county.

For the best pair of hand boquets (flat), the prize is a diploma and $3, which is awarded to No. 2, entered by D. S Place, of Putnam county.

For second best, prize, the Indiana Farmer, awarded to entry No. 1, exhibited by Mrs. Allen Loyd, of Tippecanoe county.

For the best pair of hand boquets (round), the premium is a diploma and $3, which is awarded to entry No. 1, exhibited by Mrs. Allen Loyd, of Tippecanoe county.

For the 2d best, the Practical Farmer, is awarded to entry No. 2, exhibited by G. W. Butcher, of Marion county, both very good.

Best and largest basket boquet with handle, premium, Western Horticultural Review and $3, awarded to entry No. 1, exhibited by Mrs. Allen Loyd, of Tippecanoe county.

Second best, Tippecanoe Farmer, to entry No. 2, exhibited by Mrs. M. Temperly, Jefferson county.

For the most beautifully arranged basket of flowers, prize, Western Horticultural Review and $3, awarded to entry No. 3, exhibited by Miss E. J. Todd, of Jefferson county. This entry was precisely what the premium list called for, "the most beautifully arranged basket of flowers." Any other description would not do it justice.

Second best, premium, Indiana Farmer, awarded to entry No. 4, exhibited by Mrs. Pitcher, of Jefferson county. This was a beautiful basket, but did not equal No. 3, in arrangement or variety.

Best collection of green house plants owned by one person. First prize, a set of tea spoons; second best, the Western Horticultural Review. There were five entries for these premiums—none of them large. First prize awarded to No. 3, exhibited by Allen Loyd & Son, of Tippecanoe county. This collection contained twenty-nine kinds, and about fifty plants, all in fine order, among which fuchsias, verbenas, geraniums and a splendid abutilonvarium were the most prominent. There were also unusually fine petunias accompanying this collection.

The premium for 2d best is awarded to entry No. 4, a small collection, but second in numbers to No. 3, exhibited by Miss R. N. Fry, of Marion county. Several varieties of cactus, ceres, culla Etheopica and geraniums were prominent in this collection. All were in remarkably fine condition.

Before closing this report the committee would call the attention of the executive officers to the impropriety of permitting entries not in compliance with the rules. The first rule requires that all articles shall be entered before five o'clock, P. M., on the day preceding the Fair, and declares that if not so entered, they cannot come in competition for premiums. By permitting entries to be made as late as the second day of the Fair, the committee found their labors greatly increased,

as the first day's work necessarily had to be done over again. But there is a still greater evil, involving a positive wrong to those who comply with the rules. Entries made within the time prescribed by the rules are on exhibition during the first day of the Fair; others seeing these gather hints and suggestions from them, and go to work to get up something superior; and by having the advantage of two days delay, they are brought in fresh from the stem. In the mean time the regular entries have become somewhat faded, especially the cut flowers, and by these means the later entries are often enabled to show to much the best advantage. Any one may see the unfairness of this. We are aware of the abundant labors of the executive committee, and that such things are allowed from a desire to accommodate all; but they will lessen their labors, and do better justice by requiring their rules to be kept inviolate.

The committee in conclusion would express their high gratification at the increased attention to the cultivation of flowers and kindred pursuits, shown by this exhibition, and would express the hope that their proper appreciation may become so general as that every home may be made attractive by their simple yet graceful adornings.

S. B. GOOKINS,
MRS. JOS. ORR,
MRS. F. P. RANDALL,
MISS LAURA REAM, } *Committee.*

ACCOUNT OF SOIL AND MODE OF CULTIVATING CRANBERRIES.

BY JOHN A. BURBANK.

The soil we cultivate on is a rich vegetable mould, composed entirely of decayed grasses on a pure white sand having no mixture of clay or gravel.

Our mode of cultivation is very simple—first, drain the marsh so as to get it dry enough to plow up in the fall deep enough to throw the sand on top, then brush, harrow perfectly level, which makes it ready for the vines. Then select the vines and dig up with a sod of from two to three inches thick, and cut the sods in squares of about four inches, then distribute in rows of three feet apart, then go along and dig holes so as to bury the top of the sod even with the top of the ground and plant the sods three feet apart each way. Do nothing more but keep the drains open for one year, so as to let the vines run together, for in that time they will nearly mat together. After one year stop the drains so as to leave the water on from the first of November to the first of June.

PREMIUM BUTTER.

MADE BY MRS. T. D. WILSON, OF DECATUR COUNTY.

This butter was made from one cow which had been milked about four months. The cow gave on an average twenty pounds of milk per day, and in six and one-half days gave 130 pounds of milk, from which were made the ten pounds of butter.

Treatment of milk.—The milk was placed in stone pans holding one gallon each, and then placed in the cellar where it stood until it commenced to change, after which the cream was removed, each milking being once skimmed.

Mode of churning.—Churned after the old way in a common dash churn, no thermometer being used nor any warm water during churning. After being churned the butter was partially washed in cold water, the remainder of the milk being removed by working; one ounce of salt used to the pound of butter; no other substances were used. After the working of the butter it was kept in brine strong as could be made until removed for the Fair; it was then dressed by washing in sweet milk, and adding one tea spoonful of loaf sugar to the pound and a small quantity of salt.

The cow was kept on wheat stubble pasture, on which clover had been sown in the spring, pasture being rather short. Besides the pasture, the cow was fed morning and evening, about one-half gallon of wheat bran.

STATEMENT CONCERNING PREMIUM CHEESE UNDER ONE YEAR OLD.

BY ISAAC PARKER, OF HENRY COUNTY.

One of the cheese I have sent for exhibition was made in June, and the other in September. I milk seventeen cows and use two milkings for one cheese. I put all the cream in the cheese except what is used on my table. I prepare my rennet for use by putting one rennet to a gallon of water, and use to one cheese between one gill and a half pint, but this depends much on the strength of the rennet, and will be no certain rule to go by. I put the curd to press immediately after salting while warm, and press it twenty-four hours, turning it once during the time, in a dry clean cloth. When it is removed from press it is placed on a smooth table and banded with a cotton cloth, to prevent it spreading and getting ill shape. It is then oiled. While curing it is turned and rubbed every day with the hand.

My pastures are mixed timothy, blue grass and white clover, principally the two latter. No other feed used.

ADDRESS.

ADDRESS OF PROF. J. J. MAPES, AT THE INDIANA STATE FAIR.

REPORTED FOR THE INDIANA STATE JOURNAL, BY B. R. SULGROVE, ESQ.

We did not hear the first few remarks of the Professor. He announced, after finishing his preliminary remarks, that he would speak on the subject of the "importance of drainage and sub-soiling." The earth was originally made of rock, but frost and heat and other influences had caused it to crumble at the surface, thus creating the soil that covers the earth. This process, instituted by nature, must be continued by man to preserve or create fertility in the soils.

I claim that the same principles made use of by nature, in the original formation of soils by the *debris* of rocks, should be availed of for the continued comminution of the particles of soils; for we may view every pebble stone and grain of sand, as requiring the same operation of nature's laws to cause it to give up the inorganic constituents of plants, pent up within itself, as did the original rock from which it came.

We also claim that the crops distinctly depend upon the quantity of surface of particles presented for atmospheric influences, and so conditioned as to be readily permeated by roots in search of their constituents. It is well known that some pebble soils, which in practice are barren, have the same composition as the finely divided soils of the Miami valley, and which last are of most fertile character. It is evident, therefore, that the mechanical division of the soil, and its presentation to the continuance of the action of nature's laws, is a question of degree, as applied to its capability of furnishing the pabulum for crops; and therefore the deepest cultivation, and the greatest amount of atmosphere, with a proper degree of humidity, which can be brought in contact with the surface of the greatest number of particles, is that which must prove the most profitable. And it is a mere question of cost, as to the greatest depth to which these conditions may be furnished to the soil.

The use of under-drains, then, is not merely to rid the soil of excess of water; for its temperature will depend in part upon the quantity of air which shall pass

through it. Under-drains, therefore, are useful to the soil, by enabling air to circulate between its particles; and it is for this reason that under-drained soils, so arranged that every alternate drain shall be opened at both ends to the atmosphere, will present the anomaly of alternate good and comparatively indifferent crops.

I would lay down, then, the following self-evident propositions:

1. The removal of excess of water by under-draining, permits the free access of air.

2. The chemical changes, necessary to liberate the inorganic constituents pent up in the particles of soil, go on more rapidly.

3. Those portions of the soil known as alumina and carbon, receive larger amounts of ammonia and carbonic acid from rains, dews and atmosphere, than in soils not so prepared.

4. Roots will permeate such soils to greater distances, and hence come in contact with larger amounts of such constituents as are required for their food, than if the soil was not so prepared.

5. The temperature of the soil is materially elevated by under-draining and sub-soil plowing, thus giving a longer season, and rendering the soil capable of earlier plowing.

6. The carbonaceous portions of the soil become increased by the decay of a greater amount of roots.

7. Less manure is required to fertilize soils so prepared.

8. Thoroughly prepared soils never suffer from drouth.

9. A less amount of seed will produce a maximum crop.

10. Sub-soiled meadows never run out.

11. Deeply disintegrated soils become darker in color.

12. A large class of weeds are destroyed by a thorough deepening of the soil, including all those which frequently occur in sour and wet soils.

13. Under-drained and sub-soiled lands do not compact after plowing, from rains, to the extent that is noticeable with ordinary plowing only.

14. The increased amount of crops consequent upon such preparation, will enable the farmer to pay ten per cent. per annum, or more, upon the cost of the under-drained, from the increased ratio of crops, beyond the expenses of their production.

15. Soils so prepared will improve more rapidly than any others, even beyond the improvement of the first few years, which goes to reimburse the original expense, and thus, in perpetuity, increase the value of the land, more than the whole cost of under-draining.

16. The net profit of twenty consecutive years, by under-draining, is double — the excess crops leaving no portion of the expenses to bear upon them, other than in their harvest, from increased quantity.

The First Proposition.—The removal of the excess of water by under-draining permits the free access of air, is self-evident; for while the space between the particles is occupied by water, even the heavier portions of the atmosphere — such as carbonic acid — held in it, cannot enter the soil, but after its removal, the atmosphere not only is depositing its heavier portions in the soil, but the current of air which must be continually passing through under-drains is leaking through the

tile, and thus rising up through the soil; for if both ends be open, the current of air through the drain is at all times sufficient to blow out a candle at the more elevated end, and thus a change of atmosphere between the particles must be continually taking place.

Second.—The chemical changes necessary to liberate the inorganic constituents pent up in the particles of soil, go on more rapidly.

It is evident, first, that by the presence of atmosphere, and a proper degree of humidity, roots, and other organic matters in the soil, will the more rapidly undergo decomposition. This has evidence in the fact that every fence post decays most rapidly at its earth-collar, or where the moisture of the soil and the atmosphere, by their combined efforts, may cause its decay. And thus we often find a post rotted off at the surface of the soil, while its lower end has remained comparatively sound.

These conditions exist in all parts of properly under-drained soil, from the fact that both air and moisture are at all times present among the particles. The changes in the organic portions are also going on with redoubled activity, for as fast as oxydation of surfaces takes place, and they become soluble in water, these soluble portions are carried, by the activity of capiliary attraction, etc., to new surfaces. And these chemical changes can only occur by such transportations giving rise to new formations.

Thus, a feldspar particle yields up a portion of potash, which may be removed to a particle of silex, thus forming the soluble silicate of potash, so valuable in coating and giving strength to straw. Acids are brought in contact with alkalies, and all soluble inorganic materials are presented to each other, so as to render the conditions for the different required chemical changes.

Third.—Those portions of the soil known as alumnia and carbon, receive larger amounts of ammonia and carbonic acid from rains, dews, and atmosphere, than in soils not so prepared.

Our readers are well aware that both alumina and carbon have the power to abstract ammonia from the atmosphere, and to retain it until consumed by plants, nor will it be removed from the carbon and alumina by water passing down over their particles. The quantity of ammonia then, abstracted from the atmosphere, must be in proportion to the quantity of atmosphere that may be brought in contact with these absorbing particles, which must be materially greater in well areated soils than in those that have been less thoroughly disturbed and divested of stagnant water.

The dews and rains, also, while passing through the atmosphere, receive these gases which result from decompositions of all kinds on the earth's surface; and when they enter an under drained soil, they readily pass down instead of running over the surface. In passing through the soil, they are robbed of these gasses by the carbon, alumina, oxyde of iron, and by the other ingredients as are capable of receiving and retaining them.

Fourth.—Roots will penetrate such soils to greater distances, and hence come in contact with larger amounts of such constituents as are required for their food, than if the soil was not so prepared.

The former propositions render it evident that a larger amount of food prepared for plant use, does exist in a deeply-tilled soil properly areated by under-drains,

and the use of the sub-soil plow. It is also evident that the mechanical condition of such soils cannot be as compact as those suffused with water — in other words that they are looser — therefore, that the roots of plants can travel to greater distances without coming in contact with a sub-soil, which would disease their termini and prevent their increase.

Practically, roots will travel in a soil loosened to a sufficient depth, to an average of thirty four inches — while all fluids in passing through that depth of soil, will be robbed by the alumina and carbon, of all their manurial constituents. Practically, plants grown on under-drained and sub-soiled lands, have a greater number of termini to their roots, and are of greater length.

In order to ascertain the length of the roots of corn, I planted a stalk in an artificial mound, some feet higher than the earth, and when grown fastened it to a stake, and then by a stream of water washed the mound away, so as to leave the roots perfect in their entire length. I found that they averaged *five and a half feet.* And if the soil be broken up to the depth of but five or six inches, some four feet or more of root, and all the power of contributing to the nourishment of the stalk possessed by it, are lost. Corn cannot attain its full size or excellence in poorly prepared soils.

Fifth.—The temperature of the soil is materially elevated by under-draining and sub-soil plowing, thus giving a longer season, and rendering the soil capable of earlier plowing.

Every observer is aware that the atmosphere, during the growing seasons of the year, is warmer than the soils, and therefore the larger the quantity of atmosphere that passes through the soil, the higher must be its temperature; and in some instances the temperature of the soil has been raised ten degrees, as compared with adjacent soils not similarly treated. Dews and rains, also, during summer, are much warmer than the soil, and in passing through it part with that heat beneath the surface, instead of doing so while running over the surface, as in shallow plowed land.

All the chemical changes which occur in the soil which are increased as before described, give out heat, and this tends to elevate the temperature. The more rapid and constant decay of organic matter also tends to blacken the soil, and thus render it capable of receiving the sun's heat to a greater depth. The freezing of such soils will be found to occur to a less depth than in shallow plowed land, for when winter approaches, as at all other times, it contains no excess of water to be frozen; and during winter, the melting of snow and ice can pass down through the soil, and be delivered at the under-drains, instead of being frozen when occupying the spaces between the particles of the upper portions of the soil.

Soils not under-drained, are rendered cold by the evaporation of excess water from the surface. The *rationale* may be thus understood. If we wet our hair, and then fan it, the head will be cooled; for as the water becomes vapor, it takes present heat from the head, rendering it latent. If a bottle of water be surrounded by a wet towel, and placed in a draught of air, the evaporation from the towel will cool the water in the bottle. The same effect, and from the same causes, must occur from a surface-wet soil, where, as when under-drained, no excess of water remaining on the surface, the mass cannot be cooled.

Sixth.—The carbonaceous portions of the soil become increased by the decay of a greater amount of roots.

If we admit that larger crops are raised, of course we have more roots as a consequence, and their decay must produce a larger amount of carbon. Practically, the soil becomes darker, and by analysis establishes the above fact.

Seventh.—Less manure is required to fertilize soils so prepared.

This must be evident, first, because the soil itself is undergoing more rapid chemical changes, and over a greater amount of surface, furnishing larger amounts of inorganic materials required by plants. It also, from its deep disintegration, becomes the storehouse of larger quantities of carbonic acid, and ammonia received from the atmosphere, as well as from the decomposition of a larger amount of roots. And when other fertilizers are added, they become distributed over a greater amount of surface, and therefore a larger portion is retained, than when in shallow-plowed lands their gaseous products, after decomposition, are lost in the atmosphere.

Eighth.—Thoroughly prepared soils never suffer from drouth.

During drouth, when the surface soils are dry, the atmosphere necessarily contains the missing portions of water; and whenever it comes in contact with a surface colder than itself, it deposits the water. Thus we find drops condensed on the outside of a cold pitcher; and thus we find tufts of grass growing luxuriantly where fence posts have been removed and the holes filled up with loose earth, even in the driest weather—for the large amount of atmosphere that is passing through under-drained and sub-soiled land, must come in contact with surfaces colder than itself, and there deposit the water. When so deposited, it is always highly charged with those gasses which are mixed with the atmosphere, and which are retained by the soil.

Ninth and Tenth.—A less amount of seed will produce maximum crops. Sub-soiled meadows never run out.

Thin sowing is now common in England, on under-drained, and deeply disintegrated soils. Thus a single bushel of wheat when sown in such soils, will throw out *tiller-roots*, so as to throw up plants covering the vacant spaces; and a few quarts of seed take the place of a bushel. But in shallow plowed land this tillering will not take place to the same extent; for as soon as one root reaches the cold, solid sub-soil, the tillering of the whole plant ceases, and it is for this reason that sub-soil meadows never run out; for if the crown of grass root be abraided by the feet of cattle, it immediately renews itself by tillering, which would not be the case in shallow plowed meadows.

Eleventh.—A large class of weeds are destroyed by a thorough deepening of the soil, including all those which frequently occur in sour and wet soils.

As soils amend themselves by the natural progress consequent upon the uninterrupted application of nature's laws, as in deeply disintegrated soils, they lose acidity, and thus refuse to sustain these weeds, which are of acid character, while the absence of excess of moisture does not furnish the conditions which many valueless plants require for their germination. In addition to which, it may be said that soils properly prepared are so much more easily tilled during the progress of crops, that the greater industry removes all weeds of whatever character they may be.

Twelfth.—Under-drained and sub-soiled lands do not compact after plowing, from rains, to the extent that is noticeable, with ordinary plowing only.

If two barrels be filled with sand, the one lightly thrown in, and the other rammed after every shovel full, and the loose barrel then be flooded with water and filled up with sand to offset for the settling, it will be found to contain a larger amount of sand of the two; for when every particle of the sand is suffused with water, so that the entire surface is lubricated, they will settle to the closest fit, and become more solid than any mechanical force, without water, could make them. In under-drained soils, the excess of water being removed and new portions received, even during violent rains, can only compact the immediate surface, for the spaces between particles being all empty, water can pass down without any portion of the soil becoming diffused.

In addition to this, all the surfaces being humid, the water can travel over them with greater rapidity than if dry. In passing water through dry soil, the particle has to become wetted before it will pass the next portion of water; and thus under-drained and sub-soiled lands do not compact, except at their immediate surface, and there to a much less extent than shallow plowed lands, over which the rains pass.

Thirteenth.—The increased amount of crops consequent upon such preparation, will enable the farmer to pay ten per cent. per annum, or more, upon the cost of the under-drains, from the increased ratio of crops beyond the expenses of their production.

This is a question which has been practically settled by every farmer who has tried the experiment; and in England, where the government will advance to any farmer the necessary amount to under-drain his land, taking a mortgage for the amount, practice has proved that the increased crop consequent on under-draining, has, in every case, enabled the farmer to pay up the interest, and five per cent. more of the principal each year, leaving his farm increased in value, at the end of the term, more than equal to the amount of the mortgage, while the nation at large is enriched, not only to the amount of the mortgage and interest paid, but by an increased interest for all time.

Private companies, with large capitals, are now established in England, for loaning money on under-drain mortgages; and even the owners of hereditary estates are permitted to mortgage for the purpose of under-draining only, practice having proved that the value of the estate is always increased equal to the expense of under-draining.

Fourteenth.—Soils so prepared will improve more rapidly than any others, even beyond the improvement of the first few years, which goes to reimburse the original expense, and thus in perpetuity, increase the value of the land, more than the whole cost of under-draining.

This will be readily understoood, from the fact that the organic matter must be continually on the increase, from the decomposition of increased quantities of root in the soil, as a natural consequence of increased crops, while the preparation of the inorganic integrants of the soil for plant use, must bear a similar ratio; for upon an increase of carbon must be an increase of permeability to atmosphere, with superior conditions for all required chemical changes. And the experience of the Yester experimentors and others, clearly shows, that with an equal amount

of fertilizing material added to that which would not improve shallow plowed land the under-drained and sub-soiled portions are continually benefitting by increased capacity.

Sixteenth.—The net profit of six consecutive years, by under-draining, is double — the excess crops leaving no portion of the expenses to bear upon them, other than in their harvest, from increased quantity.

This is a practical question, which has been clearly settled by all those who have owned farms drained twenty years ago. It should be borne in mind that but few crops give a net profit to the grower, of more than twenty per cent. of their gross amount; therefore, if the crop be increased twenty per cent., the profit is doubled; and we know of many instances where the increase has been fifty per cent., and in some cases one hundred per cent.

The difficulties which a few years ago surrounded the practicability of under-draining, sub-soil plowing, and deep surface plowing, no longer exist. Drain tile are now made in all parts of the Union, and at moderate prices. The machines themselves for making these tile, can be purchased for about one hundred dollars, and wherever a clay bank can be found, they may be put in operation, manufacturing many thousands per day. Books have been published, giving full and explicit instructions for under-draining; and in many localities the water discharged from one field may be used to irrigate another, which, if also under-drained, may be materially benefitted by such practice, particularly when in a permanent meadow. By the use of water rams, a portion of the water may be elevated for the use of stables, etc.

The old style sub-soil plow, which requires two or more yoke of oxen to propel it, has been replaced by the new lifting sub-soil plow, which may be run to any required depth, with a single pair of horses, mules, or oxen; and we have yet to find the soil where this implement cannot be used. Those who object to elevating the sub-soil, or in localities where the sub-soil is of a kind that should not be raised — which localities, by the by, are few and far between — may, with the lifting plow, disintegrate the sub-soil in its place, without elevating it all.

Those, also, who object to running over the surface-soil to any greater depth than they find a black mold, may disintegrate the sub-soil in place, and after such disturbance they will soon find the depth of their surface-soil materially increased, so as to warrant them in increasing their plowing, without a departure from their rule of being guided in the depth of plowing by the color of the soil.

They may even disintegrate on old pasture without turning over the sod; for as this plow is a gradual inclined plane of only one and a half inches rise, and alike on both its sides, it elevates the soil for that distance, leaving it all free above its sole, like the soil above a *mole track*, without abraiding the roots of the grass; and the cut through which the upright knives of the plow travel, closing up behind it, leaves the whole surface of the field sub-soil plowed, elevated one or two inches, and all in a softer condition of the soil than from ordinary plowing, while the surface grass remains undisturbed; each root, however, having the soil loosened about it, giving free entrance for air and moisture, so that the dead roots may decay, and those which are in a growing condition take on new vigor. One cut of this plow through the middle of an old pasture, will in ten days show a green strip, surpassing the rest of the field in verdure, and of about four feet wide.

Such a plow may follow an ordinary surface plow, propelled by a separate team, with its beam lying in the bottom of the furrow made by the surface-plow, under cutting the land side in its travel, and causing the furrow to be lifted during its passage along beneath it, so as to soften and divide it, and render the next surface-plow cut capable of being performed with much less force. But this tool is of comparatively little use in soils requiring under-draining, as excess of water will soon settle the soil, however well disintegrated.

Prof. Mapes at this point, produced a small brass model of this plow, in illustration of the point he was discussing. He also exhibited the model of a plow which he thought would work with less resistance than any other. It embodied a principle which he thought deserved attention.

He concluded this part of his address by reiterating the importance of drainage, which, he said, was not to *let water out*, but to *let air in*.

He then took a carrot, lying on the stand, and remarked that it had been well ascertained, that a bushel of carrots mixed with a bushel of oats, made better and more nourishing food for horses than two bushels of oats. The oat, he said, was not all appropriated; part of it passed through the digestive apparatus without yielding its nutriment. The carrot prevents this waste. This is the explanation he gave about it. If you put an apple in a tub of water, a boy may bob at it for an hour without being able to bite it. It is not fixed. But if placed in a tub of jelly, that will hold it firmly enough to enable him to get hold of it. Now the carrot contains an acid, which acting on certain substances gelatinizes them, that is makes them like jelly. The oat is one of them. In its ordinary condition, the perisilatic motion of the intestines prevents it being taken hold of by the digestive apparatus properly, and a portion of its nutriment is lost. But the acid of the carrot by "jellyfying" it, so fixes it that it can be entirely absorbed by the system. He said that he had learned the livery men of his vicinity the use of carrots, and now he sells his whole crop to them at 50c. per bushel, and he raises about 100 bushels to the acre, clearing fully four hundred dollars to the acre. The carrot was an excellent article of food for cattle.

He then explained, at some length, the mode of cultivating carrots. The seed, he said, was a thin scaly seed, and very tender. If placed over half an inch deep in the soil it rotted. If planted at a less depth it baked. His plan was to plant radishes along with the carrots, which germinated rapidly, shaded the latter from the sun, and gave them protection. When the radishes are pulled up they loosen the soil, and allow the air and moisture to penetrate, and the process makes the very best of cultivation for the carrots. If not pulled up, a roller will crush and kill them, without damaging the carrot.

The Professor noticed some beets and spoke of their hybridization, and the inferiority produced by it. He then took up a couple of pears of a kind recently introduced from France, which command almost fabulous prices in the east. They are grafted on quince bushes, and ripen off the tree in January, February, or as late as March. He has some hundreds of trees, and sold his whole crop to Taylor of New York, at $1 50 a dozen. This rage for this particular fruit he says is a great absurdity, but it will have its run, and farmers may as well profit by it.

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